

# **Lewis County, Idaho, All Hazards Mitigation Plan Volume II**

## **Wildland-Urban Interface Wildfire Mitigation Plan**

**June 15, 2005**

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**Vision:** Institutionalize and promote a countywide hazard mitigation ethic through leadership, professionalism, and excellence, leading the way to a safe, sustainable Lewis County.

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## Acknowledgments

This Wildland-Urban Interface Wildfire Mitigation Plan represents the efforts and cooperation of a number of organizations and agencies, through the commitment of people working together to improve the preparedness for hazard events while reducing factors of risk.

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Lewis County Commissioners  
and the employees of Lewis County



Clearwater Resource Conservation and  
Development Council, Inc.



USDI Bureau of Land Management



USDA Forest Service



Idaho Bureau of Homeland Security



**FEMA**

Federal Emergency Management Agency



*Together, we can save a life*

American Red Cross



Idaho Department of Lands  
Kamiah & Craigmont Area Offices



City of Craigmont  
City of Kamiah  
City of Nezperce  
City of Winchester  
Town of Ruebens

Craigmont Volunteer Fire Department  
Kamiah Volunteer Fire Department  
Nezperce Volunteer Fire Department  
Winchester Volunteer Fire Department  
&  
Local Businesses and Citizens of Lewis  
County

To obtain copies of this plan contact:

**Lewis County Commissioner's Office**  
P.O. Box 39  
510 Oak Street  
Nezperce, Idaho 83543

Telephone 208-937-2661  
Fax: 208-937-9234  
e-Mail: [clarson@lewiscountyid.org](mailto:clarson@lewiscountyid.org)

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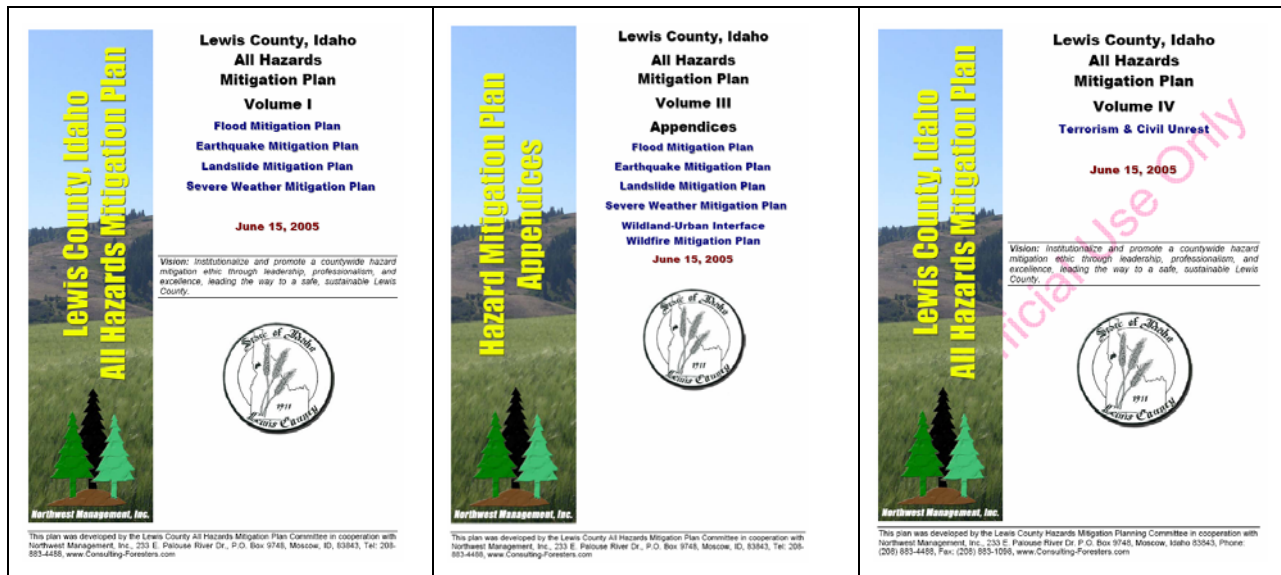
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## Foreword

The **Lewis County Wildfire Hazards Mitigation Plan** was developed during 2004 by the Lewis County Hazard Mitigation Planning Committee in cooperation with Northwest Management, Inc., of Moscow, Idaho. Four bound documents have been produced as part of this planning effort. They include:

- Volume I: All Hazards Mitigation Plan including chapters of;
  - Flood Mitigation Plan
  - Earthquake Mitigation Plan
  - Landslide Mitigation Plan
  - Severe Weather Mitigation Plan
- **Volume II: Wildland Urban Interface Wildfire Mitigation Plan**
- Volume III: Appendices for Volumes I & II
- Volume IV: Terrorism and Civil Unrest Mitigation Plan

The Lewis County Wildland-Urban Interface Wildfire Mitigation Plan, in addition to being compatible with FEMA requirements is also compatible with the National Fire Plan, the Healthy Forests Restoration Act, and the Idaho Implementation Strategy for the National Fire Plan. The Terrorism and Civil Unrest Mitigation Plan may be restricted in its distribution.





**FEMA**

August 29, 2005

Mr. Charles Doty  
Lewis County Board of Commissioners  
District 1  
510 Oak Street  
Nezperce, Idaho 83543

Dear Commissioner Doty:

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) has approved the Lewis County All Hazards Mitigation Plan. The following plan participants are now eligible to apply for the Robert T. Stafford Disaster Relief and Emergency Assistance Act's hazard mitigation project grants through August 29, 2010:

**Lewis County**  
**Nezperce**  
**Winchester**

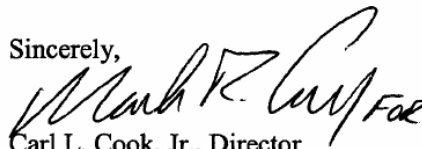
**Craigmont**  
**Kamiah**

The plan's approval provides the participants eligibility to apply for hazard mitigation projects through your state. Grant applications will be evaluated individually according to the specific eligibility and other requirements of the particular hazard mitigation grant program. For example, a mitigation project identified in the approved plan may or may not meet the eligibility requirements for Hazard Mitigation Grant Program (HMGP) funding.

Over the next five years we encourage Lewis County to follow the plan's schedule for monitoring and updating the plan, develop further mitigation actions, and continue the multi-jurisdictional partnership exemplified in the plan. The plan must be reviewed, revised as appropriate, and resubmitted for approval within five years in order to continue project grant eligibility.

If you have questions regarding your plan's approval or FEMA's mitigation grant programs, please contact our state counterpart, Idaho Bureau of Homeland Security, who coordinates and administers these efforts for local entities.

Sincerely,

  
Carl L. Cook, Jr., Director  
Mitigation Division

cc: Stephen Weiser, Idaho Bureau of Homeland Security

Enclosure

JV:gb

[www.fema.gov](http://www.fema.gov)

# Chapter I: Overview of this Plan and its Development

## 1 Introduction

This Wildland-Urban Interface Wildland Fire Mitigation Plan for Lewis County, Idaho, is the result of analyses, professional cooperation and collaboration, assessments of wildfire risks and other factors considered with the intent to reduce the potential for wildfires to threaten people, structures, infrastructure, and unique ecosystems in Lewis County, Idaho. The planning team responsible for implementing this project was led by the Lewis County Commissioners. Agencies and organizations that participated in the planning process included:

- Lewis County Commissioners and County Departments
- City of Craigmont
- City of Kamiah
- City of Nezperce
- City of Winchester
- Town of Ruebens
- Idaho Department of Lands
- USDI Bureau of Land Management, (also providing funding through the National Fire Plan)
- Idaho Bureau of Homeland Security
- Clearwater Resource Conservation and Development
- Craigmont Volunteer Fire Department
- Kamiah Volunteer Fire Department
- Nezperce Volunteer Fire Department
- Winchester Volunteer Fire Department
- Northwest Management, Inc.

The Lewis County Commissioners, working cooperatively with the Clearwater RC&D, solicited competitive bids from companies to provide the service of leading the assessment and the writing of the **Lewis County All Hazards Mitigation Plan**. The Commissioners selected Northwest Management, Inc., to provide this service. In addition, the Lewis County Commissioners solicited bids to from companies and organizations to lead efforts in preparing the Lewis County All Hazards Mitigation Plan. Northwest Management, Inc., was also selected to provide this service to the County. Northwest Management, Inc., is a professional natural resources consulting firm located in Moscow, Idaho. Established in 1984 NMI provides natural resource management services across the USA. The Project Manager from Northwest Management, Inc. was Dr. William E. Schlosser, a professional forester and regional planner.

## **1.1 Goals and Guiding Principles**

### **1.1.1 Federal Emergency Management Agency Philosophy**

Effective November 1, 2004, a Local Hazard Mitigation Plan approved by the Federal Emergency Management Agency (FEMA) is required for Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Program (PDM) eligibility. The HMGP and PDM program provide funding, through state emergency management agencies, to support local mitigation planning and projects to reduce potential disaster damages.

The new local hazard mitigation plan requirements for HMGP and PDM eligibility is based on the Disaster Mitigation Act of 2000, which amended the Stafford Disaster Relief Act to promote and integrated, cost effective approach to mitigation. Local hazard mitigation plans must meet the minimum requirements of the Stafford Act-Section 322, as outlined in the criteria contained in 44 CFR Part 201. The plan criteria covers the planning process, risk assessment, mitigation strategy, plan maintenance, and adoption requirements.

FEMA will only review a local hazard mitigation plan submitted through the appropriate State Hazard Mitigation Officer (SHMO). Draft versions of local hazard mitigation plans will not be reviewed by FEMA. FEMA will review the final version of a plan prior to local adoption to determine if the plan meets the criteria, but FEMA will be unable to approve it prior to adoption. In Idaho the SHMO is:

Idaho Bureau of Homeland Security  
4040 Guard Street, Bldg 600  
Boise, ID 83705

A FEMA designed plan will be evaluated on its adherence to a variety of criteria.

- Adoption by the Local Governing Body
- Multi-jurisdictional Plan Adoption
- Multi-jurisdictional Planning Participation
- Documentation of Planning Process
- Identifying Hazards
- Profiling Hazard Events
- Assessing Vulnerability: Identifying Assets
- Assessing Vulnerability: Estimating Potential Losses
- Assessing Vulnerability: Analyzing Development Trends
- Multi-Jurisdictional Risk Assessment
- Local Hazard Mitigation Goals
- Identification and Analysis of Mitigation Measures
- Implementation of Mitigation Measures
- Multi-Jurisdictional Mitigation Strategy
- Monitoring, Evaluating, and Updating the Plan
- Implementation Through Existing Programs
- Continued Public Involvement

### **1.1.2 Additional State and Federal Guidelines Adopted**

The Wildland-Urban Interface Wildfire Mitigation Plan component of this All Hazards Mitigation Plan will include compatibility with FEMA requirements while also adhering to the guidelines proposed in the National Fire Plan, the Idaho Statewide Implementation Plan, and the Healthy

Forests Restoration Act (2004). This Wildland-Urban Interface Wildland Fire Mitigation Plan has been prepared in compliance with:

- The National Fire Plan; A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan–May 2002.
- The Idaho Statewide Implementation Strategy for the National Fire Plan–July 2002.
- Healthy Forests Restoration Act (2004)
- The Federal Emergency Management Agency’s Region 10 guidelines for a Local Hazard Mitigation Plan as defined in 44 CFR parts 201 and 206, and as related to a fire mitigation plan chapter of a Natural Hazards Mitigation Plan.

***“When implemented, the 10-Year Comprehensive Strategy will contribute to reducing the risks of wildfire to communities and the environment by building collaboration at all levels of government.”***  
- The NFP 10-Year Comprehensive Strategy August 2001

The objective of combining these four complimentary guidelines is to facilitate an integrated wildland fire risk assessment, identify pre-hazard mitigation activities, and prioritize activities and efforts to achieve the protection of people, structures, the environment, and significant infrastructure in Lewis County while facilitating new opportunities for pre-disaster mitigation funding and cooperation.

#### **1.1.2.1 National Fire Plan**

The goals of this Wildland-Urban Interface Fire Mitigation Plan include:

1. Improve Fire Prevention and Suppression
2. Reduce Hazardous Fuels
3. Restore Fire-Adapted Ecosystems
4. Promote Community Assistance

Its three guiding principles are:

1. Priority setting that emphasizes the protection of communities and other high-priority watersheds at-risk.
2. Collaboration among governments and broadly representative stakeholders
3. Accountability through performance measures and monitoring for results.

This Wildland-Urban Interface Fire Mitigation Plan fulfills the National Fire Plan’s 10-Year Comprehensive Strategy and the Idaho Statewide Implementation Strategy for the National Fire Plan. The projects and activities recommended under this plan are in addition to other Federal, state, and private / corporate forest and rangeland management activities. The implementation plan does not alter, diminish, or expand the existing jurisdiction, statutory and regulatory responsibilities and authorities or budget processes of participating Federal, State, and tribal agencies.

By endorsing this implementation plan, all signed parties agree that reducing the threat of wildland fire to people, communities, and ecosystems will require:

- Firefighter and public safety continuing as the highest priority.
- A sustained, long-term and cost-effective investment of resources by all public and private parties, recognizing overall budget parameters affecting Federal, State, Tribal, and local governments.
- A unified effort to implement the collaborative framework called for in the Strategy in a manner that ensures timely decisions at each level.
- Accountability for measuring and monitoring performance and outcomes, and a commitment to factoring findings into future decision making activities.
- The achievement of national goals through action at the local level with particular attention on the unique needs of cross-boundary efforts and the importance of funding on-the-ground activities.
- Communities and individuals in the wildland-urban interface to initiate personal stewardship and volunteer actions that will reduce wildland fire risks.
- Management activities, both in the wildland-urban interface and in at-risk areas across the broader landscape.
- Active forestland and rangeland management, including thinning that produces commercial or pre-commercial products, biomass removal and utilization, prescribed fire and other fuels reduction tools to simultaneously meet long-term ecological, economic, and community objectives.

The National Fire Plan identifies a three-tiered organization structure including 1) the local level, 2) state/regional and tribal level, and 3) the national level. This plan adheres to the collaboration and outcomes consistent with a local level plan. Local level collaboration involves participants with direct responsibility for management decisions affecting public and/or private land and resources, fire protection responsibilities, or good working knowledge and interest in local resources. Participants in this planning process include Tribal representatives, local representatives from Federal and State agencies, local governments, landowners and other stakeholders, and community-based groups with a demonstrated commitment to achieving the strategy's four goals. Existing resource advisory committees, watershed councils, or other collaborative entities may serve to achieve coordination at this level. Local involvement, expected to be broadly representative, is a primary source of planning, project prioritization, and resource allocation and coordination at the local level. The role of the private citizen is not to be underestimated, as their input and contribution to all phases of risk assessments, mitigation activities, and project implementation is greatly facilitated by their involvement.

### **1.1.2.2 Idaho Statewide Implementation Strategy**

The Strategy adopted by the State of Idaho is to provide a framework for an organized and coordinated approach to the implementation of the National Fire Plan, specifically the national "10-Year Comprehensive Strategy Implementation Plan".

Emphasis is on a collaborative approach at the following levels:

- County
- State

Within the State of Idaho, the Counties, with the assistance of State and Federal agencies and local expert advice, will develop a risk assessment and mitigation plan to identify local

vulnerabilities to wildland fire. A Statewide group will provide oversight and prioritization as needed on a statewide scale.

This strategy is not intended to circumvent any work done to date and individual Counties should not delay implementing any National Fire Plan projects to develop this county plan. Rather, Counties are encouraged to identify priority needs quickly and begin whatever actions necessary to mitigate those vulnerabilities.

It is recognized that implementation activities such as; hazardous fuel treatment, equipment purchases, training, home owner education, community wildland fire mitigation planning, and other activities, will be occurring concurrently with this County wide planning effort.

#### **1.1.2.2.1 County Wildland Fire Interagency Group**

Each County within the state has been requested to write a Wildland Fire Mitigation Plan. These plans should contain at least the following five elements:

- 1) Documentation of the process used to develop the mitigation plan. How the plan was developed, who was involved and how the public was involved.
- 2) A risk assessment to identify vulnerabilities to wildfire in the wildland-urban interface (WUI).
- 3) A prioritized mitigation strategy that addresses each of the risks. Examples of these strategies could be: training for fire departments, public education, hazardous fuel treatments, equipment, communications, additional planning, new facilities, infrastructure improvements, code and/or ordinance revision, volunteer efforts, evacuation plans, etc.
- 4) A process for maintenance of the plan which will include monitoring and evaluation of mitigation activities
- 5) Documentation that the plan has been formally adopted by the involved agencies. Basically a signature page of all involved officials.

This five-element plan is an abbreviated version of the FEMA mitigation plan and will begin to meet the requirements for that plan. To develop these plans each county should bring together the following individuals, as appropriate for each county, to make up the County Wildland Fire Interagency Group. It is important that this group has representation from agencies with wildland fire suppression responsibilities:

- County Commissioners (Lead)
- Local Fire Chiefs
- Idaho Department of Lands representative
- USDA Forest Service representative
- USDI Bureau of Land Management representative
- US Fish and Wildlife representative
- Bureau of Indian Affairs
- Local Tribal leaders
- Idaho Bureau of Homeland Security
- LEPC Chairperson

- Resource Conservation and Development representative
- State Fish and Game representative
- Interested citizens and community leaders as appropriate
- Other officials as appropriate

Role of Resource Conservation and Development Councils (RC&D) If requested by the County Commissioners, the local RC&D's may be available to assist the County Commissioners in evaluating each County within their council area to determine if there is a wildland fire mitigation plan in place, or if a plan is currently in the development phase. If no plan is in place, the RC&D's, if requested, could be available to assist the Commissioners with the formation of the County Wildland Fire Interagency Group and/or to facilitate the development of wildland fire mitigation plan.

If a plan has been previously completed, the Commissioners will determine if the recommended five elements have been addressed. The Counties will provide a copy of the completed mitigation plan to the Idaho Department of Lands National Fire Plan Coordinator, which will include a contact list of individuals that developed the plan.

### **1.1.2.3 National Association of State Foresters**

#### **1.1.2.3.1 Identifying and Prioritizing Communities at Risk**

This plan is written with the intent to provide the information necessary for decision makers (elected officials) to make informed decisions in order to prioritize projects across the entire county. These decisions may be made from within the council of Commissioners, or through the recommendations of ad hoc groups tasked with making prioritized lists of projects. It is not necessary to rank projects numerically, although that is one approach, rather it may be possible to rank them categorically (high priority set, medium priority set, and so forth) and still accomplish the goals and objectives set forth in this planning document.

The following was prepared by the National Association of State Foresters (NASF), June 27, 2003, and is included here as a reference for the identification of prioritizing treatments between communities.

**Purpose:** To provide national, uniform guidance for implementing the provisions of the "Collaborative Fuels Treatment" MOU, and to satisfy the requirements of Task e, Goal 4 of the Implementation Plan for the 10-Year Comprehensive Strategy.

**Intent:** The intent is to establish broad, nationally compatible standards for identifying and prioritizing communities at risk, while allowing for maximum flexibility at the state and regional level. Three basic premises are:

- Include all lands and all ownerships.
- Use a collaborative process that is consistent with the complexity of land ownership patterns, resource management issues, and the number of interested stakeholders.
- Set priorities by evaluating projects, not by ranking communities.

The National Association of State Foresters (NASF) set forth the following guidelines in the Final Draft Concept Paper; Communities at Risk, December 2, 2002.

**Task:** Develop a definition for "communities at risk" and a process for prioritizing them, per the Implementation Plan for the 10-Year Comprehensive Strategy (Goal 4.e.). In addition, this

definition will form the foundation for the NASF commitment to annually identify priority fuels reduction and ecosystem restoration projects in the proposed MOU with the federal agencies (section C.2 (b)).

#### 1.1.2.3.2 Conceptual Approach

1. NASF fully supports the definition of the Wildland Urban Interface (WUI) previously published in the Federal Register. Further, proximity to federal lands should not be a consideration. The WUI is a set of conditions that exists on, or near, areas of wildland fuels nation-wide, regardless of land ownership.
2. Communities at risk (or, alternately, landscapes of similar risk) should be identified on a state-by-state basis with the involvement of all agencies with wildland fire protection responsibilities: state, local, tribal, and federal.
3. It is neither reasonable nor feasible to attempt to prioritize communities on a rank order basis. Rather, communities (or landscapes) should be sorted into three, broad categories or zones of risk: high, medium, and low. Each state, in collaboration with its local partners, will develop the specific criteria it will use to sort communities or landscapes into the three categories. NASF recommends using the publication “Wildland/Urban Interface Fire Hazard Assessment Methodology” developed by the National Wildland/Urban Interface Fire Protection Program (circa 1998) as a reference guide. (This program, which has since evolved into the Firewise Program, is under the oversight of the National Wildfire Coordinating Group (NWCG)). At minimum, states should consider the following factors when assessing the relative degree of exposure each community (landscape) faces.
  - **Risk:** Using historic fire occurrence records and other factors, assess the anticipated probability of a wildfire ignition.
  - **Hazard:** Assess the fuel conditions surrounding the community using a methodology such as fire condition class, or [other] process.
  - **Values Protected:** Evaluate the human values associated with the community or landscape, such as homes, businesses, and community infrastructure (e.g. water systems, utilities, transportation systems, critical care facilities, schools, manufacturing and industrial sites, and high value commercial timber lands).
  - **Protection Capabilities:** Assess the wildland fire protection capabilities of the agencies and local fire departments with jurisdiction.
4. Prioritize by project not by community. Annually prioritize projects within each state using the collaborative process defined in the national, interagency MOU “For the Development of a Collaborative Fuels Treatment Program”. Assign the highest priorities to projects that will provide the greatest benefits either on the landscape or to communities. Attempt to properly sequence treatments on the landscape by working first around and within communities, and then moving further out into the surrounding landscape. This will require:
  - First, focus on the zone of highest overall risk but consider projects in all zones. Identify a set of projects that will effectively reduce the level of risk to communities within the zone.
  - Second, determining the community’s willingness and readiness to actively participate in an identified project.

- Third, determining the willingness and ability of the owner of the surrounding land to undertake, and maintain, a complementary project.
  - Last, set priorities by looking for projects that best meet the three criteria above. It is important to note that projects with the greatest potential to reduce risk to communities and the landscape may not be those in the highest risk zone, particularly if either the community or the surrounding landowner is not willing or able to actively participate.
5. It is important, and necessary, that we be able to demonstrate a level of accomplishment that justifies to Congress the value of continuing the current level of appropriations for the National Fire Plan. Although appealing to appropriators and others, it is not likely that many communities (if any) will ever be removed from the list of communities at risk. Even after treatment, all communities will remain at some, albeit reduced, level of risk. However, by using a science-based system for measuring relative risk, we can likely show that, after treatment (or a series of treatments), communities are at “*reduced risk*”.

Similarly, scattered, individual homes that complete projects to create defensible space could be “counted” as “households at reduced risk”. This would be a way to report progress in reducing risk to scattered homes in areas of low priority for large-scale fuels treatment projects.

Using the concept described above, the NASF believes it is possible to accurately assess the relative risk that communities face from wildland fire. Recognizing that the condition of the vegetation (fuel) on the landscape is dynamic, assessments and re-assessments must be done on a state-by-state basis, using a process that allows for the integration of local knowledge, conditions, and circumstances, with science-based national guidelines. We must remember that it is not only important to lower the risk to communities, but once the risk has been reduced, to maintain those communities at a reduced risk.

Further, it is essential that both the assessment process and the prioritization of projects be done collaboratively, with all local agencies with fire protection jurisdiction – federal, state, local, and tribal – taking an active role.

#### **1.1.2.4 Healthy Forests Restoration Act**

On December 3, 2003, President Bush signed into law the Healthy Forests Restoration Act of 2003 to reduce the threat of destructive wildfires while upholding environmental standards and encouraging early public input during review and planning processes. The legislation is based on sound science and helps further the President’s Healthy Forests Initiative pledge to care for America’s forests and rangelands, reduce the risk of catastrophic fire to communities, help save the lives of firefighters and citizens, and protect threatened and endangered species.

Among other things the Healthy Forests Restoration Act (HFRA):

- Strengthens public participation in developing high priority projects;
- Reduces the complexity of environmental analysis allowing federal land agencies to use the best science available to actively manage land under their protection;
- Creates a pre-decisional objections process encouraging early public participation in project planning; and
- Issues clear guidance for court action challenging HFRA projects.

The Lewis County Wildland-Urban Interface Wildfire Mitigation Plan is developed to adhere to the principles of the HFRA while providing recommendations consistent with the policy

document which should assist the federal land management agencies (US Forest Service and Bureau of Land Management) with implementing wildfire mitigation projects in Lewis County that incorporate public involvement and the input from a wide spectrum of fire and emergency services providers in the region.

### **1.1.3 Local Guidelines and Integration with Other Efforts**

#### **1.1.3.1 Lewis County Fire Mitigation Planning Effort and Philosophy**

The goals of this planning process include the integration of the National Fire Plan, the Idaho Statewide Implementation Strategy, the Healthy Forests Restoration Act, and the requirements of FEMA for a county-wide Wildfire Mitigation Plan; a component of the County's All Hazards Mitigation Plan. This effort will utilize the best and most appropriate science from all partners, the integration of local and regional knowledge about wildfire risks and fire behavior, while meeting the needs of local citizens, the regional economy, the significance of this region to the rest of Idaho and the Inland West.

##### **1.1.3.1.1 Mission Statement**

To make Lewis County residents, communities, state agencies, local governments, and businesses less vulnerable to the negative effects of wildland fires through the effective administration of wildfire hazard mitigation grant programs, hazard risk assessments, wise and efficient fuels treatments, and a coordinated approach to mitigation policy through federal, state, regional, and local planning efforts. Our combined prioritization will be the protection of people, structures, infrastructure, and unique ecosystems that contribute to our way of life and the sustainability of the local and regional economy.

##### **1.1.3.1.2 Vision Statement**

Institutionalize and promote a countywide wildfire hazard mitigation ethic through leadership, professionalism, and excellence, leading the way to a safe, sustainable Lewis County.

##### **1.1.3.1.3 Goals**

- To reduce the area of WUI land burned and losses experienced because of wildfires where these fires threaten communities in the wildland-urban interface
- Prioritize the protection of people, structures, infrastructure, and unique ecosystems that contribute to our way of life and the sustainability of the local and regional economy
- Educate communities about the unique challenges of wildfire in the wildland-urban interface (WUI)
- Establish mitigation priorities and develop mitigation strategies in Lewis County
- Strategically locate and plan fuel reduction projects
- Provide recommendations for alternative treatment methods, such as brush density, herbicide treatments, fuel reduction techniques, and disposal or removal of treated fuels
- Meet or exceed the requirements of the National Fire Plan and FEMA for a County level Fire Mitigation Plan

## Chapter 2: Documenting the Planning Process

### 2 Initiation

Documentation of the planning process, including public involvement, is required to meet FEMA's DMA 2000 (44CFR§201.4(c)(1) and §201.6(c)(1)). This section includes a description of the planning process used to develop this plan, including how it was prepared, who was involved in the process, and how all of the involved agencies participated.

#### 2.1 *Description of the Planning Process*

The Lewis County All Hazard Mitigation Plan was developed through a collaborative process involving all of the organizations and agencies detailed in Section 1.0 of this document. The County Commissioner's Office contacted these organizations directly to invite their participation and schedule meetings of the planning committee. The planning process included 5 distinct phases which were in some cases sequential (step 1 then step 2) and in some cases intermixed (step 4 completed though out the process):

1. **Collection of Data** about the extent and periodicity of hazards in and around Lewis County. This included an area encompassing Adams, Boise, Payette, Valley, and Washington Counties to insure a robust dataset for making inferences about hazards in Lewis County specifically.
2. **Field Observations and Estimations** about risks, juxtaposition of structures and infrastructure to risk areas, access, and potential treatments.
3. **Mapping** of data relevant to pre-disaster mitigation control and treatments, structures, resource values, infrastructure, risk assessments, and related data.
4. **Facilitation of Public Involvement** from the formation of the planning committee, to a public mail survey, news releases, public meetings, public review of draft documents, and acknowledgement of the final plan by the signatory representatives.
5. **Analysis and Drafting of the Report** to integrate the results of the planning process, providing ample review and integration of committee and public input, followed by signature of the final document.

#### 2.2 *The Planning Team*

Planning efforts were led by the Project Co-Directors, Dr. William E. Schlosser, of Northwest Management, Inc. and Mr. Toby R., Brown, B.S. Dr. Schlosser's education includes 4 degrees in natural resource management (A.S. geology; B.S. forest and range management; M.S. natural resource economic & finance; Ph.D. environmental science and regional planning). Mr. Brown holds a bachelor's degree in Forest Resource Management.

They led a team of resource professionals that included city and rural fire protection, law enforcement, State of Idaho Bureau of Homeland Security, Idaho Department of Lands, the US Forest Service, the Bureau of Land Management, fire mitigation specialists, resource management professionals, and hazard mitigation experts.

The planning team met with many residents of the county during the inspections of communities, infrastructure, and hazard abatement assessments. This methodology, when coupled with the other approaches in this process, worked adequately to integrate a wide spectrum of observations and interpretations about the project.

The planning philosophy employed in this project included the open and free sharing of information with interested parties. Information from federal and state agencies was integrated into the database of knowledge used in this project. Meetings with the committee were held throughout the planning process to facilitate a sharing of information between cooperators.

When the public meetings were held, many of the committee members were in attendance and shared their support and experiences with the planning process and their interpretations of the results.

### **2.2.1 Multi-Jurisdictional Participation**

CFR requirement §201.6(a)(3) calls for multi-jurisdictional planning in the development of hazard mitigation plans which impact multiple jurisdictions. This Wildfire Mitigation Plan is applicable to the following Jurisdictions:

- Latah County, Idaho
- City of Craigmont
- City of Kamiah
- City of Nezperce
- City of Winchester
- Town of Ruebens

All of these jurisdictions were represented on the planning committee, in public meetings, and participated in the development of hazard profiles, risk assessments, and mitigation measures. The monthly planning committee meetings were the primary venue for authenticating the planning record. However, additional input was gathered from each jurisdiction in a combination of the following ways:

- Planning committee leadership visits to scheduled municipality public meeting (e.g., County Commission meetings, City Hall meetings) where planning updates were provided and information was exchanged.
- One-on-one visits between the planning committee leadership and the representatives of the municipality (e.g., meetings with County Commissioners, or City Councils in chambers).
- Special meetings at each jurisdiction by the planning committee leadership requested by the municipality involving elected officials (mayors and County Commissioners), appointed officials (e.g., County Assessor, Sheriff), municipality employees, local volunteers (e.g., fire district volunteers), business community representatives, and local citizenry.
- Written correspondence was provided monthly between the planning committee leadership and each municipality updating the cooperators in the planning process, making requests for information, and facilitating feedback.

Planning committee leadership (referenced above) included: Doug Shaller, Lewis County Disaster Services Coordinator, all of the Lewis County Commissioners, Dr. William E. Schlosser, Toby Brown, Tera Duman, and Vaiden Bloch, all of Northwest Management, Inc., and Dan Pierce, Clearwater Resource Conservation and Development Council, Inc., Coordinator.

Like other rural areas of Idaho and the USA, Lewis County's human resources have many demands put on them in terms of time and availability. None of the elected officials (County Commissioners and City Mayors) serve in a full-time capacity: all of them have other employment and serve the community through a convention of community service. Recognizing this, many of the jurisdictions decided to identify a representative from the jurisdiction to cooperate on the planning committee and then report back to the remainder of their organization on the process and serve as a conduit between the planning committee and the jurisdiction. This was the case with the Lewis County Commissioners where all of the Commissioners attended the planning committee meetings as a regular attendee.

At the city level, all of the City Mayor offices were represented in a variety of ways. In some instances the Mayor personally attended the meetings (e.g., City of Nezperce, City of Craigmont). More commonly, the Mayor of a municipality appointed a representative from the municipality to provide this representation on the committee meetings. For example, the Chief of the Kamiah Fire Department represented the City of Kamiah (the Kamiah Rural and Kamiah City Chief was also one of the County Commissioners), the City Clerk of Winchester is also one of the County Commissioners, the Craigmont Fire Chief represented the City of Craigmont, etc. In the cases when the Mayors were unable to attend, the planning committee leadership provided communications and feedback with the municipality directly to insure the multi-jurisdictional planning necessitated by this process.

## **2.3 Public Involvement**

Public involvement in this plan was made a priority from the inception of the project. There were a number of ways that public involvement was sought and facilitated. In some cases this led to members of the public providing information and seeking an active role in protecting their own homes and businesses, while in other cases it led to the public becoming more aware of the process without becoming directly involved in the planning process.

### **2.3.1 News Releases**

Under the auspices of the Lewis County All Hazards Mitigation Planning Committee, news releases were submitted to area news papers and radio (there are no local television companies servicing this county).

#### **2.3.1.1 Newspaper Articles**

Committee and public meeting announcements were published in the local newspapers ahead of each meeting. The following is an example of one of the newspaper announcements that ran in the local newspaper.

#### **All Hazards Mitigation Plan Launched**

The Lewis County All Hazards Mitigation Plan has been launched as part of the FEMA program. The plan will include risk analysis at the community level with predictive models for where disasters are likely to occur.

The local contact for this effort is Project Manager William Schlosser. Northwest Management, Inc. has been retained by the county to provide risk assessments, mapping, field inspections, interviews and to collaborate with the committee to prepare the plan. The coordinating team includes fire districts, land managers, elected officials, community members and others. Northwest Management, Inc., in cooperation with the planning committee, will be mailing a brief survey to randomly selected homeowners in

the county seeking details about home construction materials, proximity to water sources, and past experiences with hazards in the county. This survey is very important to the success of the plan. Those homeowners who receive a survey are asked to please take the time to complete it, thereby, benefiting the community overall.

The planning team will be conducting public meetings to discuss preliminary findings and to seek public involvement in the planning process. A notice on the date and location of these meetings will be posted.

### **2.3.2 Public Mail Survey**

In order to collect a broad base of perceptions about wildland fire and individual risk factors of homeowners in Lewis County, a mail survey was conducted. Approximately 235 residents of Lewis County were randomly selected to receive a mail surveys.

The public mail survey developed for this project has been used in the past by Northwest Management, Inc., during the execution of other Hazard Mitigation Plans. The survey used The Total Design Method (Dillman 1978) as a model to schedule the timing and content of letters sent to the selected recipients. Copies of each cover letter, mail survey, and communication are included in Appendix III.

The first in the series of mailing was sent March 26, 2004, and included a cover letter, a survey, and an offer of receiving a custom GIS map of the area of their selection in Lewis County if they would complete and return the survey. The free map incentive was tied into assisting their community and helping their interests by participating in this process. Each letter also informed residents about the planning process. A return self-addressed enveloped was included in each packet. A postcard reminder was sent to the non-respondents on April 8, 2004, encouraging their response. A final mailing, with a revised cover letter pleading with them to participate, was sent to non-respondents on April 26, 2004.

Surveys were returned during the months of April, May, June, July, August and September. A total of 115 residents responded to the survey as of December 10th, 2004. The effective response rate for this survey was 50%. Statistically, this response rate allows the interpretation of all of the response variables significantly at the 99% confidence level.

#### **2.3.2.1 Survey Results**

A summary of the survey's results will be presented here and then referred back to during the ensuing discussions on the need for various treatments, education, and other information.

Of the 115 respondents in the survey, approximately 31% were from the Kamiah area, 29% from Craigmont, 16% were from Nezperce, 11% from Winchester, with the remaining respondents from other areas in the county.

The vast majority of the respondents (99%) correctly identified that they have emergency telephone 911 services in their area. Structure fire protection in Lewis County is limited to those living in the area of Kamiah, in the cities of Craigmont and Winchester, and within the rural fire district surrounding Nezperce. Many of the residents living in the rural areas of the west and northern sides of the county are without structural fire protection. Approximately 88% of the respondents to the survey indicated they have structural fire protection. Analysis of this data indicates that those living inside of a fire protection district were 100% correct in their analysis. However, approximately 22% of those respondents who live outside of a structure fire protection area reported they believe they have rural fire protection services.

Respondents were asked to indicate the type of roofing material covering the main structure of their home. Approximately 48% of respondents indicated their homes were covered with a composite material (asphalt shingles). About 46% indicated their home were covered with a metal (eg., aluminum, tin) roofing material. Roughly 6% of the respondents indicated they have a wooden roofing material such as shakes or shingles.

The average driveway length of respondents to the survey was 230 feet long (0.04 miles). The longest reported was 4,225 feet (0.8 miles). Of those respondents (6%) with a driveway over ½ mile long, approximately 50% do not have turnouts allowing two vehicles to pass. Approximately 74% of the respondents indicated an alternate escape route was available in an emergency which cuts off their primary driveway access.

Survey recipients were asked to report emergency services training received by members of the household. Their responses are summarized in Table 2.1.

**Table 2.1. Emergency Services Training received by household.**

| Type of Training                   | Percent of Households |
|------------------------------------|-----------------------|
| Wildland Fire Fighting             | 34%                   |
| City or Rural Fire Fighting        | 25%                   |
| EMT (Emergency Medical Technician) | 14%                   |
| Basic First Aid/ CPR               | 71%                   |
| Search and Rescue                  | 13%                   |

Residents were asked to indicate which, if any, of the disasters listed in Table 2.2 have affected their home, property or business within Lewis County during the past 10 years.

**Table 2.2. Disasters affecting homes in Lewis County.**

| ↓Hazard↓                 | Percent of respondents reporting hazard occurrence during the period 1993-2003, near their home. | If YES, Complete these questions... | Percent of respondents experiencing damage to their home or property. | Approximate average damage caused by each hazard (during the period 1993-2003) |
|--------------------------|--|-------------------------------------|---|--|
| Wildfire                 | 24%  | →                                   | 15%   | \$22,160   |
| Flood                    | 11%  | →                                   | 33%   | \$9,667  |
| Earthquake               | 0%   | →                                   | --  | \$--   |
| Landslide                | 3%   | →                                   | 33%   | \$--   |
| Wind Storm               | 45%  | →                                   | 27%   | \$948  |
| Winter Storm / Tornado   | 19%  | →                                   | 25%   | \$1,995  |
| Civil Unrest / Terrorism | 2%   | →                                   | 0%  | \$--   |

Respondents were asked to complete a fuel hazard rating worksheet to assess their home's fire risk rating. An additional column titled "results" has been added to the table, showing the percent of respondents circling each rating (Table 2.3).

Circle the ratings in each category that best describes your home.

| Table 2.3. Fuel Hazard Rating Worksheet |   | Rating | Results          |
|---|---|--------|------------------|
| <b>Fuel Hazard</b>                      | Small, light fuels (grasses, forbs, weeds, shrubs)                        | 1      | 73%              |
|   | Medium size fuels (brush, large shrubs, small trees)                      | 2      | 19%              |
|   | Heavy, large fuels (woodlands, timber, heavy brush)                       | 3      | 7%               |
| <b>Slope Hazard</b>                     | Mild slopes (0-5%)  | 1      | 86%              |
|   | Moderate slope (6-20%)  | 2      | 10%              |
|   | Steep Slopes (21-40%)   | 3      | 3%               |
|   | Extreme slopes (41% and greater)  | 4      | 1%               |
| <b>Structure Hazard</b>                 | Noncombustible roof and noncombustible siding materials                   | 1      | 42%              |
|   | Noncombustible roof and combustible siding material                       | 3      | 36%              |
|   | Combustible roof and noncombustible siding material                       | 7      | 8%               |
|   | Combustible roof and combustible siding materials                         | 10     | 13%              |
| <b>Additional Factors</b>               | Rough topography that contains several steep canyons or ridges            | +2     | Average -2.7 pts |
|   | Areas having history of higher than average fire occurrence               | +3     |                  |
|   | Areas exposed to severe fire weather and strong winds                     | +4     |                  |
|   | Areas with existing fuel modifications or usable fire breaks              | -3     |                  |
|   | Areas with local facilities (water systems, rural fire districts, dozers) | -3     |                  |

#### Calculating your risk

Values below are the average response value to each question.

$$\begin{array}{rcl}
 \text{Fuel hazard} & \underline{1.3} & \times \text{Slope Hazard } \underline{1.2} = \underline{1.6} \\
 \text{Structural hazard} & + & \underline{3.4} \\
 \text{Additional factors (+ or -)} & & \underline{-2.7} \\
 \text{Total Hazard Points} & = & \underline{2.3}
 \end{array}$$

**Table 2.4. Percent of respondents in each risk category as determined by the survey respondents.**

|                                   |
|-----------------------------------|
| 00% – Extreme Risk = 26 + points  |
| 02% – High Risk = 16–25 points    |
| 13% – Moderate Risk = 7–15 points |
| 86% – Low Risk = 6 or less points |

Many Lewis County residents have been affected by at least one of the hazards covered by the All Hazards Mitigation Plan (wildfire, flood, earthquake, landslide, windstorm, tornado, and terrorism/civil unrest). The survey included a series of questions asking if respondent home,

property, or business is located in a place that places it at risk to any on the hazards specified in Table 2.5.

**Table 2.5. Respondent home, property, or business potentially located in a place putting it at-risk to the listed hazards.**

| Disaster   | Percent At-Risk |
|------------|-----------------|
| Wildfire   | 28%             |
| Flood      | 15%             |
| Earthquake | 6%              |
| Landslide  | 2%              |
| Windstorm  | 56%             |
| Tornado    | 31%             |
| Terrorism  | 4%              |

Finally, respondents were asked “If offered in your area, would members of your household attend a free or low cost, one-day training seminar designed to share with homeowners how to reduce the potential for casualty loss surrounding your home?” 44% of respondents indicated a desire to participate in this type of training.

Homeowners were also asked, “How Hazard Mitigation projects should be funded in the areas surrounding homes, communities, and infrastructure such as power lines and major roads?” Responses are summarized in Table 2.6.

**Table 2.6. Public Opinion of Hazard Mitigation Funding Preferences.**

|   | 100% Public Funding | Cost-Share<br>(Public & Private) | Privately Funded<br>(Owner or Company) |
|---|---------------------|----------------------------------|--|
| Home Defensibility<br>Projects →                                  | 30%                 | 39%                              | 30%                                    |
| Community Defensibility<br>Projects →                             | 54%                 | 40%                              | 6%                                     |
| Infrastructure Projects<br>Roads, Bridges, Power<br>Lines, Etc. → | 63%                 | 23%                              | 14%                                    |

We wish to thank all Lewis County residents completing and returning these surveys.

### 2.3.2.2 Discussion of the Survey Results

This responses detailed Table 2.3 merit additional discussion in how residents from different areas responded to the assessments of risk. We have compared the assessments provided by respondents to this survey with assessments completed by wildfire management professional conducting community assessments in Lewis County. By comparing the homeowner’s perception of risk to the analysis conducted by wildfire management professionals, a general picture of the homeowner’s ability to identify risk factors is derived. If the two assessments are close, then the homeowner has a general picture consistent with those of the wildfire management professional. If they are highly divergent, then additional education may be warranted before mitigation measures can even be discussed.

In general, there was little variation in the identification of risk by the respondents to this survey based on where they live. Nearly all landowners ranked their risk factors around their home rather low. This assessment of risk was consistent with the risk assessments conducted by wildfire management professionals in the communities of Craigmont, Nezperce, and Reubens. We feel their assessment of the risk is consistent: the risk to wildfire around homes is low. In

contrast, the risk around the homes in Kamiah, Winchester, and Forest areas is substantially higher. However, the homeowners in these areas ranked their risk well below the level the wildfire management professionals did.

In order to address fuels modification in these areas, an educational effort may be warranted in these communities that first discusses what the risk is, why it is a risk, and how that puts the home at greater risk to wildfire losses. Only after this has been accomplished can a meaningful discussion be started that explores how to best modify the risk around these private homes and businesses.

### 2.3.3 Committee Meetings

The following list of people who participated in the planning committee meetings, volunteered time, or responded to elements of the Lewis County All Hazard Mitigation Plan's preparation.

| NAME                         | ORGANIZATION                      |
|------------------------------|-----------------------------------|
| • Steve Bateman.....         | Mayor of Nezperce                 |
| • Stephen Bly.....           | Mayor of Winchester               |
| • Toby R. Brown .....        | Northwest Management, Inc.        |
| • Charles E. Doty .....      | Commissioner                      |
| • Charlie Grubb.....         | Idaho Department of Lands         |
| • Dave Hasz.....             | LEPC                              |
| • Ken Homik.....             | Northwest Management, Inc.        |
| • Walter (Jody) Howard ..... | Winchester City Fire Department   |
| • A.P. Jones .....           | Winchester RFD                    |
| • Dave Kuther .....          | Nezperce City Fire                |
| • Joe A. Leitch .....        | Commissioner                      |
| • Robert Olive .....         | Mayor of Kamiah                   |
| • Roger Riggers .....        | Mayor of Craigmont                |
| • Debra Ruppe .....          | Idaho Bureau of Homeland Security |
| • William E. Schlosser ..... | Northwest Management, Inc.        |
| • Doug Shaller.....          | Lewis County EMS                  |
| • Leslie Snyder.....         | Lewis County Assessor             |
| • Dave Summers .....         | Idaho Department of Lands         |
| • LeAnn Trautman .....       | Commissioner                      |
| • Chris Terwilliger.....     | Northwest Management, Inc         |
| • Randal B. Wadley .....     | Lewis Co Sheriff                  |
| • Ron Werhan.....            | Lewis County Planning and Zoning  |

### **2.3.3.1 Committee Meetings**

Committee Meetings were scheduled and held from January 2004 through November 2004.

- January 12th 2004
- February 21<sup>st</sup> 2004
- March 21<sup>st</sup> 2004
- April 18<sup>th</sup>, 2004
- May 16<sup>th</sup> 2004
- June 20<sup>th</sup> 2004
- July 19<sup>th</sup> 2004
- August 16 2004
- September 20<sup>th</sup> 2004
- October 18<sup>th</sup>, 2004
- November 15<sup>th</sup> 2004

### **2.3.4 Public Meetings**

Public meetings were scheduled in a variety of communities in Lewis County during the hazard assessment phase of the planning process. Public meetings were scheduled to share information on the planning process, inform details of the hazard assessments, and discuss potential mitigation treatments. Attendees at the public meetings were asked to give their impressions of the accuracy of the information generated, and provide their opinions of potential treatments.

Wall maps detailing risk assessments, hazard profiles, and a slide show were presented at each meeting. Public meetings were conducted by Project Manager William Schlosser on the following dates and locations:

- **Public Information Meeting 1: September 14<sup>th</sup> at the Kamiah Senior Center at 7:00PM.**
- **Public Information Meeting 2: September 15<sup>th</sup> at the Nezperce Senior Center at 12:00 noon.**
- **Public Information Meeting 3: September 15<sup>th</sup> at the Winchester City Hall at 7 pm.**

A lunch meeting was presented at the senior center in Nezperce with approximately 30 people in attendance. Dr. William E. Schlosser presented an overview of the hazards mitigation planning efforts for Lewis County. Questions and comments from the audience focused on hazard preparedness, impacts of multiple hazards (fire, flood, severe weather) and how well prepared the county is to provide emergency services.

The creation of additional protection areas for structural fire protection were discussed and ideas were shared on how to make it happen.

#### **Public Information Meeting 1: Kamiah Senior Center Sept 14<sup>th</sup> 7pm Kamiah ID**

The presentation of the Lewis County All Hazard Mitigation Plan (AHMP) started at 7 pm

September 14th at the Kamiah Senior Center in Kamiah Idaho. Eight individuals were present for the meeting.

William Schlosser began the meeting with a slide show presentation about the purpose behind the All Hazard mitigation plan. He also reviewed in detail the work that the All Hazard Mitigation committee had done to date and stressed the fact that this is still a plan in process and that comments taken at this meeting would be discussed by the committee for incorporation into the plan.

The presentation continued with a detailed presentation of the FEMA requirements for an AHMP, the detailed assessments and mapping of hazards that had been done to date and some of the recommendations that the committee has come up with so far in the process.

A discussion on the Flood hazards and issues that exists in the county ensued among the audience. Many people expressed the desire to purchase and remove structures in the flood plain rather than paying to have them repaired after every flood event. There was some concern with the ongoing maintenance of the dike in the town of Nezperce. The dike keeps Long Hollow creek from flooding the town, including the county offices, sheriffs office, fire department and dispatch office. If the dike were breached the ability of many county services to respond during the flood would be severely compromised. Most people felt that the current dike is sufficient as long as it is maintained.

Also expressed was the sentiment that the improving agriculturally practices esp. CRP and grassing in ditches and swales in the fields helps slow the flow of run off water thru towns. This reduction in the high peak flows, helps reduce the impacts of flood waters and storm runoff for many communities on the Camas Prairie.

When reviewing the landslide hazard maps of the county concern was expressed about the current location and potential future location of county roads and private driveways. The concern was with the ongoing maintenance and closure/ restricted use due to continual slumping of the cut banks due to unstable soils or geology. Future consideration of these factors in the placement of county roads and private drives should be considered. This could be addressed though new county policies to use the landslide map's to create a subdivision ordinance for not constructing roads or buildings on lands having a high or extreme potential for landslide activity. This could also include the need for detailed site plans when considering development on these soil types to reduce the potential impact and future cost of road maintenance.

It was also felt that raising the road construction standards on alternative/secondary roads to be more resilient to landslide/flood/earthquake/wildfire activity, not just for current traffic needs but for alternative emergency access during multiple types of hazard events. During all types of natural hazard events in the county, flood, wind storm, winter storm, landslide, the main traffic routes are often compromised, this includes the states major north south road (Hwy 95) and North Idaho's major east west route Hwy 12. Alternative high standard routes to these roads would improve the response to local disasters when they occur and help keep interstate and intrastate traffic flowing through the county , instead of backing up into the county and exacerbating traffic flow problems.

There was also some very good and detailed discussions about creating new fire districts within the county. Currently many rural residents within the county are not covered by a local fire district. Often times residence believe they have structural fire protection, when at best they are in an area that is covered by a wild land fire district that provides no structural protection. 3 new fire districts and the extension of three current districts was discussed as a way to provide comprehensive structural protection to most county residents.

The meeting ended at 8:45 with a closing statement by Dr. Schlosser to please take a business card and contact him directly if anyone in the audience had additional thoughts or ideas on how to better prepare the county to respond to disasters.

- **Public Information Meeting 3: September 15<sup>th</sup> at Winchester City Hall at 7:00PM.**

Meeting began with a presentation of the All Hazards Mitigation Plan process by Bill Schlosser.

Discussion of Risk Assessments

- Wildfire is the primary issue for the Winchester area
- Retention of personnel is the biggest problem for the local Fire Districts
- Training of fire personnel could be enhanced

Discussion on creation of new RFD's

- Additional RFD's needed in the Forest, Rueben's and Soldier Meadows (In Nez Perce county but closest response would be from Lewis County).—Northwest Lewis County Fire District.
  - Winchester Fire Dept. cannot leave city unless fire is threatening city
  - Northwest District would be quite large
    - Need several fire stations and the equipment to go along with the stations
    - Folks in the area may not tolerate additional taxes
- Soldiers Meadows area is growing-people may be motivated to create a fire district (In Nezperce County but would have impacts on Lewis County)
- Forest—not likely to happen-lack of people in the area
- Should be made a priority to create a Fire District in the NW area of Lewis County

Discussion of “Are we looking at the right things for the plan”

- Wildfire risk is the primary risk in the Winchester area and the plan does address that risk. The challenge will be implementing the plan at the county level.
- How will citizens have access to the plan?
  - Bill S. explained the process by which the information is disseminated
  - Suggested that maps be placed in public accessible areas, such as the Post Office, city hall and other public areas
- Mutual Aid—Is discussed in the plan
- Resource and Capabilities assessments included within the plan

Resource Needs

- City of Winchester has a need for a water-tender. Currently they do not have the capabilities of hauling a large quantity of water to fires. They have an engine with an approximate 1000 gallon capacity.

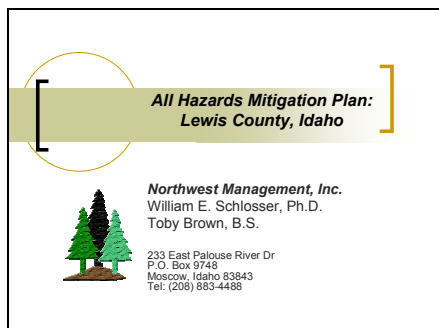
**Figure 2.1. Public meeting slideshow overview.**



The public meeting slide show (title slide above) is outlined below.

**Table 2.7. Public meeting slide show.**

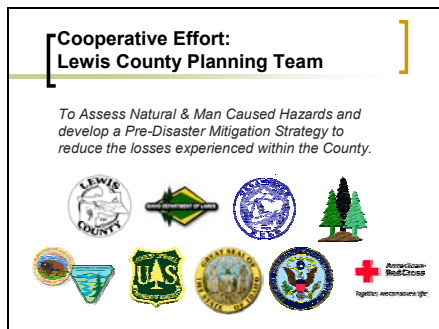
Slide 1



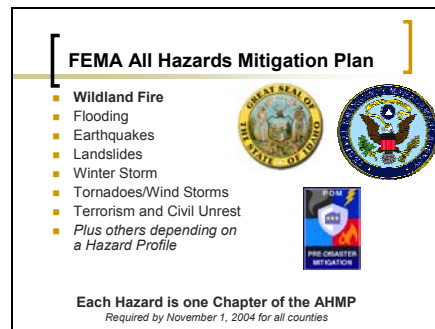
Slide 2



Slide 3

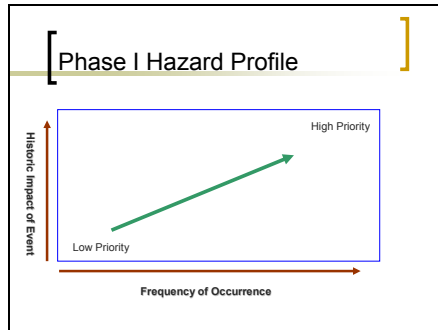


Slide 4



**Table 2.7. Public meeting slide show.**

Slide 5



Slide 6

- FEMA Requirements**  
(Outstanding Rating)
- Adoption by Local Government Body
  - Multi-Jurisdictional Planning
  - Identification of Hazards & Risk Assessment
    - Profiling Hazard Events
    - Mapping Juxtaposition of Hazards, Structures, Infrastructure
    - Potential Dollar Losses to Vulnerable Structures (B/C Analysis)
  - Documented Planning Process
  - Assessing Vulnerability
  - Mitigation Goals
  - Analysis of Mitigation Measures
  - Monitoring, Evaluating & Updating the Plan (5 year cycles)
  - Implementation Through Existing Programs
  - Public Involvement

Slide 7

- Wildfire Mitigation: National Policy**
- **National Fire Plan (2000)**
    - Preparedness
    - Rehabilitation & Restoration
    - Hazardous Fuel Reduction
    - Community Protection
    - Accountability
  - **Statewide Implementation Strategy**
    - Idaho Bureau of Homeland Security
    - Idaho Implementation Strategy of the National Fire Plan

Slide 8

- Healthy Forests Restoration Act**
- Strengthens public participation in developing high priority projects;
  - Reduces the complexity of environmental analysis allowing federal land agencies to use the best science available to actively manage land under their protection;
  - Creates a pre-decisional objections process encouraging early public participation in project planning; and
  - Issues clear guidance for court action challenging HFRA projects.

Slide 9

- Funding Opportunities**
- **Federal Monies**
    - National Fire Plan
    - Healthy Forests Restoration Act
    - Federal Emergency Management Agency
  - **State Monies**
    - Statewide Implementation Efforts
    - Idaho Bureau of Homeland Security
  - **The Goal is Hazard Reduction (eg., FireWise)**
    - Protection of People and Structures
    - Protection of Infrastructure
    - Protection of Economy
    - Protection of Ecosystems

Slide 10

- Recommendations**
- WUI Safety & Policy
  - People & Structures
  - Infrastructure
  - Resources & Capabilities
  - Regional Land Management Recommendations
- We will revisit this list at the end of the presentation...**

Slide 11

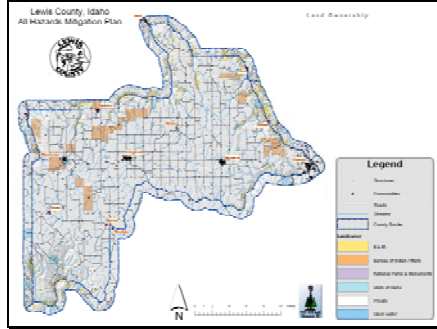


Slide 12

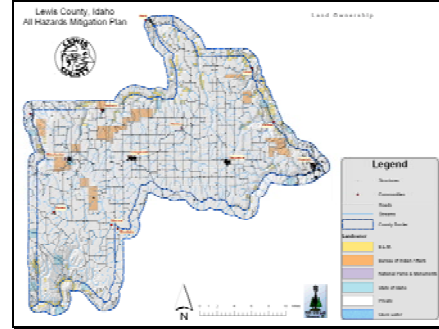
- Hazard Mitigation: Treatment Categories**
- **People and Structures**
    - Policy at the County Level
    - Reducing Risk to People and Structures
    - Planning and Zoning Changes
  - **Infrastructure Protection**
    - Power Lines
    - Roads & Bridges
    - Gas and Water Lines
    - Watersheds
  - **Resources and Capabilities**
    - Emergency Services Ability to Respond
  - **Federal, State, and Local Land Management Recommendations**

**Table 2.7. Public meeting slide show.**

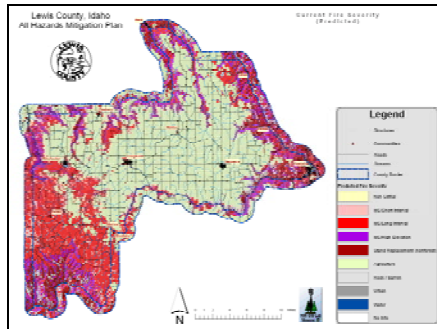
Slide 13



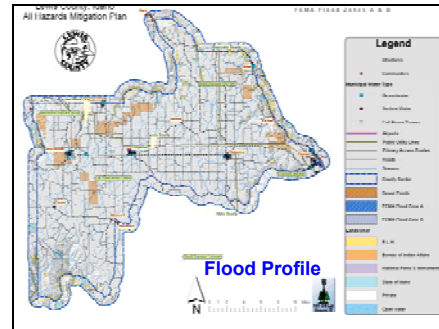
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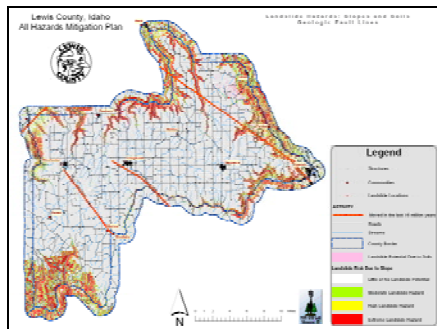
Slide 15



Slide 16



Slide 17



Slide 18

### All Hazard Assessments

- Determine risk factors
- Identify resources at risk
- Create mitigation strategies
- Assess benefit/cost ratio
- Seek funding opportunities and partners
- Implement the plan!

Slide 19

### Wildland-Urban Interface

- **Interface Condition** – a situation where structures abut wildland fuels. There is a clear line of demarcation between the structures and the wildland fuels along roads or back fences. The development density for an interface condition is usually 3+ structures per acre;
- **Intermix Condition** – a situation where structures are scattered throughout a wildland area. There is no clear line of demarcation, the wildland fuels are continuous outside of and within the developed area. The development density in the intermix ranges from structures very close together to one structure per 40 acres;
- **Occluded Condition** – a situation, normally within a city, where structures abut an island of wildland fuels (park or open space). There is a clear line of demarcation between the structures and the wildland fuels along roads and fences. The development density for an occluded condition is usually similar to that found in the interface condition and the occluded area is usually less than 1,000 acres in size; and
- **Rural Condition** – a situation where the scattered small clusters of structures (ranches, farms, resorts, or summer cabins) are exposed to wildland fuels. There may be miles between these clusters.

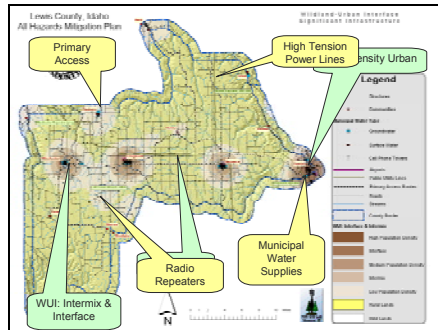
Slide 20

### Defining Lewis County's Wildland-Urban Interface

- Unique to each area & it changes over time
- Based on where structures are currently located
- Uses mathematical formulae and geospatial relationships to visually represent where the WUI exists
- *When you see it, you'll understand what we mean*

**Table 2.7. Public meeting slide show.**

Slide 21

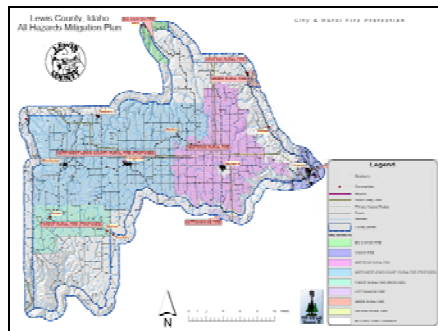


Slide 22

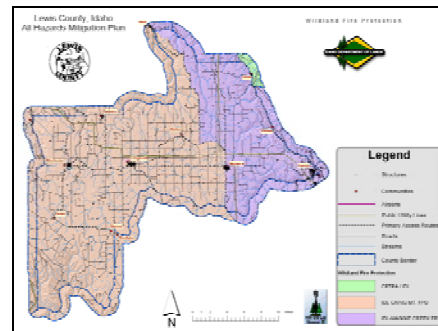
Preparedness

- City Fire Protection
- Rural Fire Protection
- Wildland Fire Protection

Slide 23



Slide 24



Slide 25

Public Involvement

- Public Mail Survey was sent to 235 households in Lewis County
  - A total of 114 surveys were returned completed (49% response rate!)
- Public Meetings will be held in 3 communities in September
- Public Review of the DRAFT Plans will be facilitated once all sections have been completed and reviewed by the committee

Slide 26

Written Plan Completion

- Committee will review the draft document first
- Public Review of the Draft document is next
- The final document will be presented for acceptance by the County Commissioners and others

Slide 27

Recommendations

- WUI Safety & Policy
- People & Structures
- Infrastructure
- Resources & Capabilities
- Regional Land Management Recommendations

Are we accomplishing these goals?

Slide 28

**Northwest Management, Inc.**

**William E. Schlosser, Ph.D.**  
**Toby Brown, B.S.**  
233 Palouse River Dr.  
PO Box 9748  
Moscow, Idaho 83843  
Tel: 208-863-4488  
Fax: 208-863-1098  
<http://www.Consulting-Foresters.com>

### **2.3.5 Documented Review Process**

The review process begins with this committee. This document will detail, in subsequent chapters, additional hazards listed below. The Terrorism and civil unrest chapter will be included in a separate document to receive limited distribution at the determination of the County Commissioners or their designees.

- Wildfire Mitigation Plan
- Flood Mitigation Plan
- Severe Weather (Winter Storm, Wind Storm, Tornado) Mitigation Plan
- Landslide & Earthquake Mitigation Plan
- Civil Unrest & Terrorism Mitigation Plan

Chapters 1, 2, and 3 of this document are provided as “Overview” chapters, to set the stage for the planning process, the public involvement, and an assessment of the county’s characteristics which influence all of the individual hazard assessments and mitigation efforts.

This set of documents will serve as the Lewis County All Hazards Mitigation Plan for County, State, and Federal Purposes. This plan will be submitted by the County Commissioners to the Idaho Bureau of Homeland Security for FEMA review and approval. The Wildland-Urban Interface Wildfire Mitigation Plan component of this plan will also be submitted to the Idaho Statewide Implementation Committee for the National Fire Plan in an effort to facilitate the County’s ability to garner financial assistance in wildfire mitigation planning and implementation.

Amendments to the plans can be made through a modification of the completed documents with acceptance by the County Commissioners, annually at the renewal of the plan.

Review and comment on these plans has been provided through a number of avenues for the Committee members as well as the members of the general public.

During regularly scheduled committee meetings during 2004, the committee met to discuss findings, review mapping and analysis, and provide written comments on draft sections of the document. During the public meetings attendees observed map analyses, photographic collections, and discussed general findings within the All Hazards Mitigation Plan.

The first draft of the document was prepared after the public meetings and presented to the committee on October 25, 2004, for a full committee review. The committee was given 1 month to provide comments to the plan.

On November 28, 2004, the planning committee met again to review changes in the document and to prepare a public review version of the documents. The revised draft was available at selected locations around Lewis County for open public review with announcements in the local media regarding the month long review period. The public review period officially closed on December 1, 2004. The All Hazard Mitigation Plan was approved by the County on December 13, 2004. All of the participating municipalities also approved the plan during the month of December, 2004.

This version of the Plan (all Volumes) was submitted for FEMA review in January 2005. Review comments by FEMA were integrated into a revised version of the planning documents and finalized on June 15, 2005. This plan was formally adopted by the Lewis County Commissioners and all listed municipalities during June, 2005. Formal resolutions of adoption are included in the Signature section of this document.

### **2.3.6 Continued Public Involvement**

Lewis County is dedicated to involving the public directly in review and updates of the All Hazard Mitigation Plan. The Lewis County Commissioners, through the Interface Hazard Mitigation Committee are responsible for the annual review and update of the plan as recommended in the “Recommendations” section of this document.

The public will have the opportunity to provide feedback about the Plan annually on the anniversary of the adoption of this plan, at the meeting of the County Commissioners. Copies of the Plan will be catalogued and kept at all of the appropriate agencies in the county. The existence and location of these copies will be publicized. Instructions on how to obtain copies of the plan will be made available on the County’s Internet web site. The Plan also includes the address and phone number of the county Planning Division, responsible for keeping track of public comments on the Plan.

In addition, copies of the plan and any proposed changes will be posted on the county website. This site will also contain an email address and phone number to which people can direct their comments and concerns.

A public meeting will also be held as part of each annual evaluation or when deemed necessary by the Interface Hazard Mitigation Committee. The meetings will provide the public a forum for which they can express its concerns, opinions, or ideas about the Plan. The County Public Information Officer will be responsible for using county resources to publicize the annual public meetings and maintain public involvement through the public access channel, webpage, and newspapers.

## Chapter 3: Lewis County Characteristics

### 3 Background and Area Description

#### 3.1 Demographics

Lewis County reported a total population of 3,747 in 2000 with approximately 1,795 housing units. Lewis County has five incorporated communities; Craigmont (pop. 556), Winchester (pop. 308), Nezperce (pop. 523), Reubens (pop. 72), and part of Kamiah (pop. 1,160). The Kamiah Airport lies in Idaho County, Idaho, but the rest of the population nad city limits of Kamiah are in Lewis County. The total population for the county increased 6.6% from 1990 to 2000. The total land area of the county is roughly 479.81 square miles (306,624 acres).

Lewis County was established March 3, 1911, with its county seat at Nezperce, where it remains to this day. Lewis County was named after Meriwether Lewis of the Lewis and Clark Expedition. This area was home to the Nez Perce Indians for many centuries before being displaced by Europeans in the late 1800's. Table 3.1 summarizes some relevant demographic statistics for Lewis County.

**Table 3.1. Selected demographic statistics for Lewis County, Idaho from the Census 2000.**

| Subject            | Number | Percent |
|--------------------|--------|---------|
| Total population   | 3,747  | 100.0   |
| <b>SEX AND AGE</b> |        |         |
| Male               | 1,891  | 50.5    |
| Female             | 1,856  | 49.5    |
| Under 5 years      | 179    | 4.8     |
| 5 to 9 years       | 276    | 7.4     |
| 10 to 14 years     | 305    | 8.1     |
| 15 to 19 years     | 261    | 7.0     |
| 20 to 24 years     | 127    | 3.4     |
| 25 to 34 years     | 330    | 8.8     |
| 35 to 44 years     | 561    | 15.0    |
| 45 to 54 years     | 523    | 14.0    |
| 55 to 59 years     | 235    | 6.3     |
| 60 to 64 years     | 257    | 6.9     |
| 65 to 74 years     | 360    | 9.6     |
| 75 to 84 years     | 249    | 6.6     |
| 85 years and over  | 84     | 2.2     |
| Median age (years) | 42.5   | (X)     |
| 18 years and over  | 2,796  | 74.6    |
| Male               | 1,385  | 37.0    |
| Female             | 1,411  | 37.7    |
| 21 years and over  | 2,699  | 72.0    |
| 62 years and over  | 850    | 22.7    |

**Table 3.1. Selected demographic statistics for Lewis County, Idaho from the Census 2000.**

| Subject   | Number | Percent |
|---|--------|---------|
| 65 years and over   | 693    | 18.5    |
| Male  | 311    | 8.3     |
| Female  | 382    | 10.2    |
| <b>RACE</b>   |        |         |
| One race  | 3,666  | 97.8    |
| White   | 3,455  | 92.2    |
| Black or African American   | 13     | 0.3     |
| American Indian and Alaska Native   | 144    | 3.8     |
| Asian   | 16     | 0.4     |
| Asian Indian  | 0      | 0.0     |
| Chinese   | 0      | 0.0     |
| Filipino  | 5      | 0.1     |
| Japanese  | 0      | 0.0     |
| Korean  | 3      | 0.1     |
| Vietnamese  | 2      | 0.1     |
| Other Asian <sup>1</sup>  | 6      | 0.2     |
| Native Hawaiian and Other Pacific Islander                                    | 3      | 0.1     |
| Native Hawaiian   | 1      | 0.0     |
| Guamanian or Chamorro   | 0      | 0.0     |
| Samoan  | 0      | 0.0     |
| Other Pacific Islander <sup>2</sup>   | 2      | 0.1     |
| Some other race   | 35     | 0.9     |
| Two or more races   | 81     | 2.2     |
| <i>Race alone or in combination with one or more other races <sup>3</sup></i> |        |         |
| White   | 3,529  | 94.2    |
| Black or African American   | 15     | 0.4     |
| American Indian and Alaska Native   | 189    | 5.0     |
| Asian   | 18     | 0.5     |
| Native Hawaiian and Other Pacific Islander                                    | 4      | 0.1     |
| Some other race   | 73     | 1.9     |
| <b>HISPANIC OR LATINO AND RACE</b>  |        |         |
| Total population  | 3,747  | 100.0   |
| Hispanic or Latino (of any race)  | 71     | 1.9     |
| Mexican   | 56     | 1.5     |
| Puerto Rican  | 0      | 0.0     |
| Cuban   | 2      | 0.1     |
| Other Hispanic or Latino  | 13     | 0.3     |
| Not Hispanic or Latino  | 3,676  | 98.1    |
| White alone   | 3,427  | 91.5    |
| <b>RELATIONSHIP</b>   |        |         |
| Total population  | 3,747  | 100.0   |

**Table 3.1. Selected demographic statistics for Lewis County, Idaho from the Census 2000.**

| Subject                                       | Number | Percent |
|---|--------|---------|
| In households                                 | 3,713  | 99.1    |
| Householder                                   | 1,554  | 41.5    |
| Spouse  | 898    | 24.0    |
| Child   | 1,013  | 27.0    |
| Own child under 18 years                      | 874    | 23.3    |
| Other relatives                               | 110    | 2.9     |
| Under 18 years                                | 55     | 1.5     |
| Non-relatives                                 | 138    | 3.7     |
| Unmarried partner                             | 71     | 1.9     |
| In group quarters                             | 34     | 0.9     |
| Institutionalized population                  | 8      | 0.2     |
| Non-institutionalized population              | 26     | 0.7     |
| <b>HOUSEHOLDS BY TYPE</b>                     |        |         |
| Total households                              | 1,554  | 100.0   |
| Family households (families)                  | 1,050  | 67.6    |
| With own children under 18 years              | 428    | 27.5    |
| Married-couple family                         | 898    | 57.8    |
| With own children under 18 years              | 328    | 21.1    |
| Female householder, no husband present        | 100    | 6.4     |
| With own children under 18 years              | 71     | 4.6     |
| Nonfamily households                          | 504    | 32.4    |
| Householder living alone                      | 437    | 28.1    |
| Householder 65 years and over                 | 226    | 14.5    |
| Households with individuals under 18 years    | 468    | 30.1    |
| Households with individuals 65 years and over | 509    | 32.8    |
| Average household size                        | 2.39   | (X)     |
| Average family size                           | 2.92   | (X)     |
| <b>HOUSING OCCUPANCY</b>                      |        |         |
| Total housing units                           | 1,795  | 100.0   |
| Occupied housing units                        | 1,554  | 86.6    |
| Vacant housing units                          | 241    | 13.4    |
| For seasonal, recreational, or occasional use | 53     | 3.0     |
| Homeowner vacancy rate (percent)              | 2.8    | (X)     |
| Rental vacancy rate (percent)                 | 10.6   | (X)     |
| <b>HOUSING TENURE</b>                         |        |         |
| Occupied housing units                        | 1,554  | 100.0   |
| Owner-occupied housing units                  | 1,159  | 74.6    |
| Renter-occupied housing units                 | 395    | 25.4    |

**Table 3.1. Selected demographic statistics for Lewis County, Idaho from the Census 2000.**

| Subject  | Number | Percent |
|--|--------|---------|
| Average household size of owner-occupied unit  | 2.42   | (X)     |
| Average household size of renter-occupied unit | 2.29   | (X)     |

(X) Not applicable

<sup>1</sup> Other Asian alone, or two or more Asian categories.<sup>2</sup> Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.<sup>3</sup> In combination with one or more other races listed. The six numbers may add to more than the total population and the six percentages may add to more than 100 percent because individuals may report more than one race.

Source: U.S. Census Bureau, Census 2000 Summary File 1, Matrices P1, P3, P4, P8, P9, P12, P13, P17, P18, P19, P20, P23, P27, P28, P33, PCT5, PCT8, PCT11, PCT15, H1, H3, H4, H5, H11, and H12.

### 3.2 Socioeconomics

Lewis County had a total of 1,795 housing units and a population density of 7.8 persons per square mile reported in the 2000 Census (Table 2.1). Ethnicity in Lewis County is distributed: white 92.2%, black or African American 0.3%, American Indian or Alaskan Native 3.8%, other race 0.9%, two or more races 2.2%, Hispanic or Latino 1.9%, and white alone (not Hispanic or Latino) 91.5%.

Specific economic data for individual communities is collected by the US Census; in Lewis County this includes Craigmont, Nezperce, Reubens, Winchester, and the part of Kamiah in Lewis County. The community of Kamiah is shared between Lewis and Idaho Counties, although the main city center and the majority of residences are within the Lewis County border. Lewis County households earn a median income of \$31,413 annually. In 2000, Craigmont, Nezperce, and Winchester had median household incomes of \$33,333, 37,697, and 35,875, respectively, which were all above the County median income during the same period. The city of Kamiah (within Lewis County) had a median household income of \$26,000 in 2000, which is approximately 17% below the Lewis County median income during the same period. No income information was available for the community of Reubens. Table 3.2 shows the dispersal of households in various income categories of all communities.

**Table 3.2. Income in 1999**

|                                      | Craigmont<br>Number(%) | Kamiah<br>Number (%) | Nezperce<br>Number(%) | Winchester<br>Number(%) |
|--------------------------------------|------------------------|----------------------|-----------------------|-------------------------|
| <b>Households</b>                    | <b>322(100.0)</b>      | <b>698(100.0)</b>    | <b>279(100.0)</b>     | <b>241(100.0)</b>       |
| Less than \$10,000                   | 38(11.8)               | 130(18.6)            | 22(7.9)               | 14(5.8)                 |
| \$10,000 to \$14,999                 | 25(7.8)                | 68(9.7)              | 22(7.9)               | 30(12.4)                |
| \$15,000 to \$24,999                 | 60(18.6)               | 145(20.8)            | 46(16.5)              | 45(18.7)                |
| \$25,000 to \$34,999                 | 48(14.9)               | 106(15.2)            | 35(12.5)              | 28(11.6)                |
| \$35,000 to \$49,999                 | 72(22.4)               | 103(14.8)            | 65(23.3)              | 53(22.0)                |
| \$50,000 to \$74,999                 | 28(8.7)                | 108(15.5)            | 61(21.9)              | 35(14.5)                |
| \$75,000 to \$99,999                 | 38(11.8)               | 26(3.7)              | 12(4.3)               | 24(10.0)                |
| \$100,000 to \$149,999               | 5(1.6)                 | 6(0.9)               | 12(4.3)               | 12(5.0)                 |
| \$150,000 to \$199,999               | 0(0.0)                 | 5(0.7)               | 0(0.0)                | 0(0.0)                  |
| \$200,000 or more                    | 8(2.5)                 | 1(0.1)               | 4(1.4)                | 0(0)                    |
| Median household income<br>(dollars) | 33,333(X)              | 26,000(X)            | 37,697(X)             | 35,875(X)               |

(Census 2000)

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, directs federal agencies to identify and address any disproportionately high adverse human health or environmental effects of its projects on minority or low-income populations. In Lewis County, a significant number of families are at or below the poverty level. Approximately 8.7% of Lewis County families are below poverty level (Table 3.3).

| <b>Table 3.3. Poverty Status in 1999.</b><br>(below poverty level) | <b>Lewis County</b> |                |
|--|---------------------|----------------|
|  | <b>Number</b>       | <b>Percent</b> |
| <b>Families</b>  | 93                  | (X)            |
| Percent below poverty level  | (X)                 | 8.7            |
| With related children under 18 years                               | 67                  | (X)            |
| Percent below poverty level  | (X)                 | 14.0           |
| With related children under 5 years                                | 24                  | (X)            |
| Percent below poverty level  | (X)                 | 18.9           |
| <b>Families with female householder, no husband present</b>        | 45                  | (X)            |
| Percent below poverty level  | (X)                 | 43.7           |
| With related children under 18 years                               | 43                  | (X)            |
| Percent below poverty level  | (X)                 | 49.4           |
| With related children under 5 years                                | 15                  | (X)            |
| Percent below poverty level  | (X)                 | 57.7           |
| <b>Individuals</b>   | 447                 | (X)            |
| Percent below poverty level  | (X)                 | 12.0           |
| 18 years and over  | 320                 | (X)            |
| Percent below poverty level  | (X)                 | 11.4           |
| 65 years and over  | 62                  | (X)            |
| Percent below poverty level  | (X)                 | 9.0            |
| Related children under 18 years                                    | 119                 | (X)            |
| Percent below poverty level  | (X)                 | 12.9           |
| Related children 5 to 17 years                                     | 84                  | (X)            |
| Percent below poverty level  | (X)                 | 11.4           |
| Unrelated individuals 15 years and over                            | 158                 | (X)            |
| Percent below poverty level  | (X)                 | 25.0           |

(Census 2000)

The unemployment rate was 4.9% in Lewis County in 1999, compared to 4.4% nationally during the same period. Approximately 15.5% of the Lewis County employed population worked in natural resources, with much of the indirect employment relying on the employment created through these natural resource occupations; Table 3.4 (Census 2000).

| <b>Table 3.4. Employment and Industry.</b>        |                     |                |
|---|---------------------|----------------|
|   | <b>Lewis County</b> |                |
|   | <b>Number</b>       | <b>Percent</b> |
| Employed civilian population 16 years and over    | 1,514               | 100.0          |
| <b>OCCUPATION</b>                                 |                     |                |
| Management, professional, and related occupations | 438                 | 28.9           |
| Service occupations                               | 285                 | 18.8           |
| Sales and office occupations                      | 272                 | 18.0           |

**Table 3.4. Employment and Industry.**

|   | Lewis County |         |
|---|--------------|---------|
|   | Number       | Percent |
| Farming, fishing, and forestry occupations  | 81           | 5.4     |
| Construction, extraction, and maintenance occupations                               | 154          | 10.2    |
| Production, transportation, and material moving occupations                         | 284          | 18.8    |
| <b>INDUSTRY</b>   |              |         |
| Agriculture, forestry, fishing and hunting, and mining                              | 234          | 15.5    |
| Construction  | 99           | 6.5     |
| Manufacturing   | 189          | 12.5    |
| Wholesale trade   | 70           | 4.6     |
| Retail trade  | 160          | 10.6    |
| Transportation and warehousing, and utilities                                       | 71           | 4.7     |
| Information   | 20           | 1.3     |
| Finance, insurance, real estate, and rental and leasing                             | 54           | 3.6     |
| Professional, scientific, management, administrative, and waste management services | 59           | 3.9     |
| Educational, health and social services   | 260          | 17.2    |
| Arts, entertainment, recreation, accommodation and food services                    | 112          | 7.4     |
| Other services (except public administration)                                       | 77           | 5.1     |
| Public administration   | 109          | 7.2     |

Approximately 61% of Lewis County's employed persons are private wage and salary workers, while around 22% are government workers (Table 3.5).

| <b>Table 3.5 Class of Worker.</b>                      | Lewis County |        |
|--|--------------|--------|
|  | Number       | Number |
| Private wage and salary workers                        | 926          | 61.2   |
| Government workers                                     | 330          | 21.8   |
| Self-employed workers in own not incorporated business | 254          | 16.8   |
| Unpaid family workers                                  | 4            | 0.3    |

(Census 2000)

### 3.2.1 Forestry, Agriculture, and Logging

Over the past century, employment through agricultural farming, timber harvesting, and livestock ranching has been significant in the region. As one of the most productive non-irrigated wheat growing regions in the world, agriculture is the major contributor to the economic stability of the County. Alternative crops include barley, oats, peas, and canola. Forestry, logging, trucking, and related support industries have relied on timber harvests from regional forestlands. Recent mill closings in the area have greatly impacted the economic situation in Lewis and surrounding counties. Three Rivers Timber, Inc. operates near by in Idaho County and subsequently impacts the community of Kamiah. Empire Lumber Company operates inside of Kamiah city limits and has a major impact on the city. Star Cedar is in Lewis County, but operates just outside of the city limits.

### 3.2.2 Recreation

This region offers a variety of recreational opportunities. Winchester Lake State Park surrounding Winchester Lake provides developed camp sites, excellent year-round fishing, boat ramps, hiking, bike paths, and restroom and picnic facilities. The park is located approximately 1 mile off U.S. Highway 95 making it particularly attractive for day use and travelers.

Fishing in the County's rivers, streams, and lakes is a favorite activity of many people. A small portion of the southern most tip of the Lewis County border follows the Salmon River. Although there are only a few roads accessing this area, fishing and hunting are very popular in this more remote section of the county. The Clearwater River, which establishes the northeastern county line, is also a popular and easily accessible recreational resource. Fishing and swimming along the banks of the river is common throughout the Clearwater River corridor, yet Milepost 61, Longcamp, Five Mile Creek, and Halfway Resort provide developed boat ramps in Lewis County. Additionally, the Kamiah City Park also offers fishing and overnight camping facilities.

Big game hunting for deer, elk and moose is especially intense every fall. During the winter, snowmobiling has become a very popular sport, with a smaller amount of cross-country skiing and snowshoeing.

The economic impacts of these activities to the local economy and the economy of Idaho have not been enumerated. However, they are substantial given the many months of the year that activities take place and the staggering numbers of visitors that travel to this location.

### 3.2.3 Resource Dependency

The communities of Lewis County have been evaluated by the University of Idaho College of Natural Resources Policy Analysis Group (PAG) for the degree of natural resource dependency each community experiences. The findings of this group indicate that Reubens was the only community experiencing significant growth, 56.5%, between 1990 and 2000 (Harris *et al.* 2003).

Idaho communities with more than 10% employment in resource-based sectors (wood products, travel & tourism, agriculture, and mining) were evaluated by Harris *et al.* (2003). Their findings indicate that Craigmont and Nezperce fall into this category as an "Agriculture Only" dependent community. Kamiah is considered under the heading of "Wood products and Travel and Tourism" dependent community. Data for Winchester was not available and Reubens was not included in this section of the study (Harris *et al.* 2000).

Harris *et al.* (2003) further evaluated Idaho communities based on their level of direct employment in several industrial sectors. Their findings for communities in Lewis County are summarized in Table 3.6. The community of Reubens was not included in this section of the study.

**Table 3.6. Levels of direct employment by industrial sector**

| Community  | Economic Diversity Index | Agriculture | Timber | Travel and Tourism | State/Local Government | Federal Government | Mining and Minerals |
|------------|--------------------------|-------------|--------|--------------------|------------------------|--------------------|---------------------|
| Craigmont  | Med. Low                 | High        | Low    | Med. Low           | Med. Low               | Low                | Low                 |
| Kamiah     | Med. High                | Med. Low    | High   | Med. High          | Med. High              | Low                | Low                 |
| Nezperce   | Med. Low                 | High        | Low    | Med. Low           | Med. Low               | Low                | Low                 |
| Winchester | NA                       | NA          | NA     | NA                 | NA                     | NA                 | NA                  |

NA = Not Available

A "low" level of direct employment represents 5% or less of total employment in a given sector; "med. low," 6 to 10%; "med. high" 11 to 19%; and "high" 20% or more of total employment in a given sector.

### 3.2.4 Development Trends

Lewis County, a predominantly agriculture-based economy, is showing mixed signs of population growth. The two largest communities, Craigmont and Kamiah, only had moderate population growths of 2.6% and 0.3% respectively between 1990 and 2000. On the other hand, the population of the more rural communities of Nezperce, Reubens, and Winchester, grew by 15.5%, 56.5%, and 16.6%, respectively (Census 2000). This may suggest that people immigrating to Lewis County or current residents moving within the county are choosing to establish homes in the smaller, more rural localities.

### 3.3 Cultural Resources

Section 106 of the National Historic Preservation Act requires federal agencies to consider the effects of their proposals on historic properties, and to provide state historic preservation officers, tribal historic preservation officers, and, as necessary, the Advisory Council on Historic Preservation a reasonable opportunity to review and comment on these actions.

Cultural resource impacts were qualitatively assessed through a presence/absence determination of significant cultural resources and mitigation measures to be employed during potential mitigation activities such as thinning, prescribed fire, road construction, flood abatement, and other activities.

Lewis County is within the Aboriginal territory boundary of the Nez Perce Indian Nation. Much of this territory was ceded to the US Government in 1855. Today, almost all of Lewis County is encompassed by the Nez Perce Indian Reservation boundary (1863 Treaty).

Typical archeological sites include settlements, lithic scatters, village sites, rock art, and hunting blinds. The Nez Perce had a network of trails throughout the area which included various trade routes, as well as gathering and hunting routes. Some of the same trails were later used by homesteaders and miners. Traditional Cultural Properties (TCPs) are cultural resources defined as a significant place or setting, and does not necessarily have any associated material remains. For example, a TCP can be a mountain, river, or natural feature (i.e., rock formation, meadow, etc.). Some of these are present in Lewis County. The integrity of some cultural resources have been impacted in the past by logging activities, road building, mining, and grazing.

The National Park Service maintains the National Register of Historical Places as a repository of information on significant cultural locale. These may be buildings, roads or trails, places where historical events took place, or other noteworthy sites. The NPS has recorded sites in its database. These sites are summarized in Tables 3.7-3.10.

|   |  |
|---|--|
| <b>Table 3.7. Historic Places: Bridwell, James F., House.</b> | Also known as Dragseth, Gena, House.<br>Added 1989 - Building - #88001446<br>107 Fifth St., Kamiah |
| Historic Significance:  | Person   |
| Historic Person:  | Bridwell, James F.   |
| Significant Year:   | 1907   |
| Area of Significance:   | Commerce, Exploration/Settlement   |
| Period of Significance:                                       | 1900-1924, 1925-1949   |
| Owner:  | <b>Private</b>   |
| Historic Function:  | Domestic   |

|   |  |
|---|--|
| <b>Table 3.7. Historic Places: Bridwell, James F., House.</b> | Also known as Dragseth, Gena, House.<br>Added 1989 - Building - #88001446<br>107 Fifth St., Kamiah |
| Historic Sub-function:  | Single Dwelling  |
| Current Function:   | Vacant/Not In Use  |

(NRHP 2003)

|   |   |
|---|---|
| <b>Table 3.8. Historic Places: Culdesac Grade</b> | Between Winchester and Culdesac, Culdesac<br>Added 1974 - Structure - #74002378<br>Lower Salmon River Archeological District<br>Added 1986 - District - #86002170<br>Address Restricted, Winchester |
| Architectural Style:                              | No Style Listed   |
| Area of Significance:                             | Art, Historic - Non-Aboriginal, Prehistoric, Industry   |
| Cultural Affiliation:                             | Tucannon Phase, Chinese, et al.   |
| Period of Significance:                           | 7000-8999 BC, 5000-6999 BC, 3000-4999 BC, 1000-2999 BC, 1000 AD-999 BC, 500-999 BC, 499-0 BC, 499-0 AD, 1000-500 AD, 1499-1000 AD, 1875-1899, 1900-1924   |
| Owner:  | <b>Private , Federal</b>  |
| Historic Function:                                | Domestic, Industry/Processing/Extraction  |
| Historic Sub-function:                            | Camp, Extractive Facility, Village Site   |
| Current Function:                                 | Agriculture/Subsistence, Recreation And Culture   |

(NRHP 2003)

|   |  |
|---|--|
| <b>Table 3.9. Historic Places: St. Joseph's Mission</b> | Added 1976 - Building - #76000677<br>Also known as Slickpoo; Site 9<br>S of Culdesac off U.S. 95, Culdesac |
| Historic Significance:                                  | Person, Event  |
| Historic Person:  | Cataldo, Father Joseph   |
| Significant Year:                                       | 1874   |
| Area of Significance:                                   | Social History, Historic - Aboriginal, Politics/Government, Religion                                       |
| Period of Significance:                                 | 1850-1874, 1875-1899   |
| Owner:  | <b>Private</b>   |
| Historic Function:                                      | Religion   |
| Historic Sub-function:                                  | Religious Structure  |
| Current Function:                                       | Landscape, Recreation And Culture, Religion  |
| Current Sub-function:                                   | Museum, Park, Religious Structure  |

(NRHP 2003)

|   |  |
|---|--|
| <b>Table 3.10. Historic Places: State Bank of Kamiah.</b> | Added 1978 - Building - #78001082<br>ID 64, Kamiah |
| Historic Significance:                                    | Architecture/Engineering                           |
| Architect, builder, or engineer:                          | Loring, Ralph                                      |
| Architectural Style:                                      | Other, Chicago                                     |

|                         |                       |
|-------------------------|-----------------------|
| Area of Significance:   | Architecture          |
| Period of Significance: | 1900-1924             |
| Owner:                  | <b>Private</b>        |
| Historic Function:      | Commerce/Trade        |
| Historic Sub-function:  | Financial Institution |
| Current Function:       | Commerce/Trade        |

(NRHP 2003)

Hazard mitigation activities in and around these sites has the potential to affect historic places. In all cases, mitigation work will be intended to reduce the potential of damaging the site due to natural and man caused disasters. Areas where ground disturbance will occur will need to be inventoried depending on the location. Such actions may include, but are not be limited to, constructing firelines (handline, mechanical line, etc.), building new roads to creeks to fill water tankers, mechanical treatments, etc. Only those burn acres that may impact cultural resources that are sensitive to burning (i.e., buildings, peeled bark trees, etc.) would be examined. Burns over lithic sites are not expected to have an impact, as long as the fire is of low intensity and short duration. Some areas with heavy vegetation may need to be examined after the burn to locate and record any cultural resources although this is expected to be minimal. Traditional Cultural Properties (TCPs) may also need to be identified. Potential impact to TCPs will depend on what values make the property important and will be assessed on an individual basis.

### **3.4 Transportation & Infrastructure**

Primary access to and from Lewis County is provided by US Highway 95, a two-lane paved road with turnouts which traverses the county through its center running north and south. This access is a primary north-south route for Idaho transportation networks, as the only road providing access between northern and southern Idaho. U.S. Highway 12, along the Clearwater River, provides additional east-west access to the northern portion of the county. State Highways 62, 64, and 162 also offer paved connections between communities. Smaller access roads (many gravel) provide access to the adjoining areas within the county. A variety of trails and closed roads are to be found throughout the region.

Many of the roads in the county were originally built to facilitate logging and farming activities. As such, many of these roads can support timber harvesting equipment, logging trucks, farming equipment, and fire fighting equipment referenced in this document. However, many of the new roads have been built for home site access, especially for new sub-divisions of homes. In most cases, these roads are adequate to facilitate equipment. County building codes for new developments should be adhered to closely to insure this tendency continues.

The most limiting point of access in the county is along US Highway 95 where it parallels Lapwai Creek, from Reubens Road to Culdesac. The highway in this area is fairly narrow, has many turns, and drops approximately 2,000 feet in elevation in less than 20 miles. Additionally, hazardous forest fuels are present along the steep canyon slopes that rise from both sides of the road. Traffic congestion during the summer (RV season) is sometimes extreme. The section of U.S. Highway 12 in Lewis County is a narrow two-lane paved road that follows a meandering path analogous to the Clearwater River. Limited shoulder width provides poor parking for vehicles. In addition, intense recreational activity, forest fuels on the westward side of this road, and a potential for flooding and erosion in connection with the Clearwater River which exacerbate a potentially catastrophic situation. Improvements to this stretch of US Highway 12 would serve to improve access between Kamiah (Lewis County) and Lewiston (Nez Perce County).

Lewis County has both significant infrastructure and unique ecosystems within its boundaries. Of note for this Hazard Mitigation Plan is the existence of the only state highway route connecting north and south Idaho (US Highway 95), the only state highway route accessing much of the Clearwater River corridor (State Highway 12), and the presence of high tension power lines supplying the communities of Lewis, Nez Perce, Clearwater, and Idaho Counties.

### 3.5 Vegetation & Climate

Vegetation in Lewis County is a mix of forestland and rangeland ecosystems. An evaluation of satellite imagery of the region provides some insight to the composition of the forest vegetation of the area. The full extent of the county was evaluated for cover type as determined from Landsat 7 ETM+ imagery in tabular format, Table 2.11.

The most represented vegetated cover type is agricultural land at approximately 46.6% of the total area. The next most common vegetation cover type represented is ponderosa pine forest at 12.4%. Mixed xeric forests and foothills grasslands each represent approximately 5.9% and 5.2% respectively (Table 3.11).

| <b>Table 3.11. Vegetative Cover Types in Lewis County.</b> | <b>Acres</b> | <b>Percent of County's Total Area</b> |
|--|--------------|---------------------------------------|
| Agricultural land  | 184,552      | 46.6%                                 |
| Ponderosa Pine   | 48,911       | 12.4%                                 |
| Mixed Xeric Forest   | 23,484       | 5.9%                                  |
| Foothills Grassland  | 20,539       | 5.2%                                  |
| Douglas-fir  | 17,249       | 4.4%                                  |
| Warm Mesic Shrubs  | 15,418       | 3.9%                                  |
| Mixed Mesic Forest   | 15,288       | 3.9%                                  |
| Exposed Rock   | 12,520       | 3.2%                                  |
| Douglas-fir/Grand Fir                                      | 12,318       | 3.1%                                  |
| Western Red Cedar/Grand Fir Forest                         | 8,500        | 2.1%                                  |
| Montane Parklands and Subalpine Meadow                     | 7,902        | 2.0%                                  |
| Western Red Cedar  | 7,557        | 1.9%                                  |
| Shrub Dominated Riparian                                   | 4,574        | 1.2%                                  |
| Maple  | 3,237        | 0.8%                                  |
| Grand Fir  | 3,007        | 0.8%                                  |
| Graminoid or Forb Dominated Riparian                       | 2,710        | 0.7%                                  |
| Disturbed Grassland  | 1,897        | 0.5%                                  |
| Needleleaf/Broadleaf Dominated Riparian                    | 1,756        | 0.4%                                  |
| Water  | 1,641        | 0.4%                                  |
| Urban  | 1,075        | 0.3%                                  |
| Curlleaf Mountain Mahogany                                 | 989          | 0.3%                                  |
| Needleleaf Dominated Riparian                              | 478          | 0.1%                                  |
| Mixed Barren Land  | 21           | 0.0%                                  |
| Cloud Cover, actual not determined                         | 8            | 0.0%                                  |

Vegetative communities within the county follow the strong moisture and temperature gradient related to the major river drainages. Limited precipitation and steep slopes result in a relatively arid environment in the southern portion of the county, limiting vegetation to drought-tolerant

plant communities of grass and shrublands, with scattered clumps of ponderosa pine and Douglas-fir at the higher elevations. As moisture availability increases, so does the abundance of conifer species, with subalpine forest communities present in the highest elevations where precipitation and elevation provide more available moisture during the growing season.

### 3.5.1 Monthly Climate Summaries in Lewis County

#### 3.5.1.1 Craigmont, Idaho (102246)

Period of Record Monthly Climate Summary

Period of Record : 2/ 1/1950 to 8/31/1996

**Table 3.12. Climate Records for Craigmont, Idaho**

|                                   | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  | Annual |
|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|--------|
| Average Max. Temperature (F)      | 35.0 | 39.0 | 47.1 | 54.0 | 61.6 | 69.1 | 77.3 | 78.2 | 69.3 | 57.0 | 40.5 | 33.5 | 55.1   |
| Average Min. Temperature (F)      | 20.9 | 21.4 | 27.7 | 32.0 | 37.6 | 43.0 | 47.0 | 46.3 | 39.7 | 32.9 | 25.4 | 18.9 | 32.7   |
| Average Total Precipitation (in.) | 1.61 | 1.48 | 2.18 | 2.34 | 2.80 | 2.07 | 1.55 | 1.00 | 1.26 | 1.53 | 2.29 | 1.46 | 21.58  |
| Average Total SnowFall (in.)      | 14.1 | 10.0 | 8.7  | 3.6  | 0.9  | 0.0  | 0.0  | 0.0  | 0.1  | 1.2  | 10.6 | 11.9 | 61.0   |
| Average Snow Depth (in.)          | 4    | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 1    | 3    | 1      |

Percent of possible observations for period of record: Max. Temp.: 33.6% Min. Temp.: 33.6% Precipitation: 36.9% Snowfall: 33.6% Snow Depth: 48.3%

#### 3.5.1.2 Kamiah, Idaho (104793)

Period of Record Monthly Climate Summary

Period of Record : 7/ 6/1948 to 12/31/2002

**Table 3.13. Climate Records for Kamiah, Idaho.**

|                                   | Jan               | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  | Annual |
|-----------------------------------|-------------------|------|------|------|------|------|------|------|------|------|------|------|--------|
| Average Max. Temperature (F)      | Insufficient Data |      |      |      |      |      |      |      |      |      |      |      |        |
| Average Min. Temperature (F)      | Insufficient Data |      |      |      |      |      |      |      |      |      |      |      |        |
| Average Total Precipitation (in.) | 2.19              | 1.70 | 2.14 | 2.49 | 2.74 | 2.31 | 1.02 | 1.03 | 1.45 | 2.00 | 2.43 | 2.09 | 23.58  |
| Average Total SnowFall (in.)      | 7.0               | 1.7  | 0.8  | 0.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.8  | 5.7  | 16.2   |
| Average Snow Depth (in.)          | 2                 | 1    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 1    | 0      |

Percent of possible observations for period of record.

Max. Temp.: 3.4% Min. Temp.: 3.1% Precipitation: 95.4% Snowfall: 82.5% Snow Depth: 80.1%

### 3.5.1.3 Nezperce, Idaho (106424)

Period of Record Monthly Climate Summary

Period of Record : 12/10/1901 to 7/31/2003

**Table 3.14. Climate Records for Nezperce, Idaho.**

|                                   | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  | Annual |
|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|--------|
| Average Max. Temperature (F)      | 34.8 | 40.6 | 46.6 | 54.8 | 63.2 | 70.5 | 80.4 | 80.7 | 71.3 | 57.8 | 42.9 | 35.4 | 56.6   |
| Average Min. Temperature (F)      | 21.5 | 24.8 | 28.1 | 33.2 | 39.2 | 44.9 | 48.9 | 48.5 | 42.1 | 34.8 | 27.8 | 22.6 | 34.7   |
| Average Total Precipitation (in.) | 1.76 | 1.35 | 1.85 | 2.23 | 2.86 | 2.28 | 1.08 | 1.16 | 1.34 | 1.73 | 1.90 | 1.60 | 21.11  |
| Average Total SnowFall (in.)      | 12.0 | 6.6  | 6.0  | 2.9  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  | 1.1  | 5.9  | 9.5  | 44.4   |
| Average Snow Depth (in.)          | 3    | 2    | 1    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 1    | 2    | 1      |

Percent of possible observations for period of record: Max. Temp.: 48.3% Min. Temp.: 48.3% Precipitation: 48.4% Snowfall: 48.4% Snow Depth: 48.3%

### 3.5.1.4 Winchester, Idaho (109846)

Period of Record Monthly Climate Summary

Period of Record : 7/ 1/1965 to 7/31/2003

**Table 3.15. Climate Records for Winchester, Idaho.**

|                                   | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  | Annual |
|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|--------|
| Average Max. Temperature (F)      | 35.0 | 39.3 | 44.2 | 51.2 | 59.6 | 67.1 | 76.6 | 77.6 | 68.4 | 56.2 | 42.0 | 34.8 | 54.3   |
| Average Min. Temperature (F)      | 19.5 | 21.8 | 25.4 | 30.5 | 36.5 | 42.2 | 45.9 | 45.3 | 39.2 | 32.3 | 25.9 | 19.6 | 32.0   |
| Average Total Precipitation (in.) | 2.15 | 1.67 | 2.48 | 2.75 | 2.94 | 2.15 | 1.29 | 1.19 | 1.45 | 1.97 | 2.37 | 1.98 | 24.38  |
| Average Total SnowFall (in.)      | 19.9 | 13.5 | 16.4 | 9.8  | 2.3  | 0.2  | 0.0  | 0.0  | 0.2  | 2.2  | 13.0 | 18.1 | 95.7   |
| Average Snow Depth (in.)          | 7    | 6    | 3    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 2    | 4    | 2      |

Percent of possible observations for period of record: Max. Temp.: 99.4% Min. Temp.: 99.4% Precipitation: 99.4% Snowfall: 99% Snow Depth: 98.1%

***The following is summarized from the Soil Survey for Nez Perce and Lewis County:*** The climate of the survey area is strongly influenced by the wide range in elevation in the area and by the surrounding topography. Considerable variations in temperature and precipitation occur within relatively short distances. Air masses moving through the region tend to become warmer and drier as they descend from the higher elevations to the low plateaus and valleys. As invading air masses ascend to the higher elevations east of the valleys, they become cooler and are more likely to produce precipitation. The high plateaus are significantly cooler and more moist than the low plateaus and valleys. The average precipitation hits a small peak in winter, reaches a maximum in May and early in June, and then hits a distinct low point in July and August. Periodically in summer, conditions are favorable for the formation of convective rain

showers and thunder showers. These showers are often scattered and of short duration, but they can nevertheless produce large amounts of precipitation in a short period of time. Thundershowers over the higher terrain tend to be more frequent and produce more rain. Winters are cold, but they generally are not too severe. Snowfall is light and often ephemeral at the low elevations, but snow accumulates to depths of several feet and remains on the ground into May at the high elevations.

In January, the average temperature is about 32 degrees F at Lewiston, 28 degrees at Nezperce, and 26 degrees at Winchester. The lowest temperature on record, which occurred at Winchester on December 30, 1968, is minus 40 degrees. In July, the average temperature is about 74 degrees at Lewiston, 65 degrees at Nezperce, and 61 degrees at Winchester. The highest recorded temperature, which occurred at Lewiston on August 4, 1961, is 115 degrees.

Growing degree days are equivalent to "heat units". During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall. The total annual precipitation is about 13 inches at Lewiston, 22 inches at Nezperce, and 25 inches at Winchester. Of this, about 50 percent usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than about 3 inches at Lewiston and 6 inches at Nezperce and Winchester. The heaviest 1-day rainfall during the period of record was 2.32 inches at Nezperce on July 13, 1956. Thunderstorms occur on about 16 days each year, and most occur in summer.

The average seasonal snowfall is about 18 inches at Lewiston, 50 inches at Nezperce, and 115 inches at Winchester. The average relative humidity in mid afternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 75 percent. The sun shines 80 percent of the time possible in summer and 45 percent in winter. The prevailing wind is from the southeast. Average wind speed is highest, 10 miles per hour, in spring.

### **3.5.2 Ecosystems**

Lewis County is a diverse ecosystem with a complex array of vegetation, wildlife, and fisheries that have developed with, and adapted to fire as a natural disturbance process. A century of wildland fire suppression coupled with past land-use practices (primarily timber harvesting) has altered plant community succession and has resulted in dramatic shifts in the fire regimes and species composition (USDA 1999). As a result, forests and rangelands in Lewis County have become more susceptible to large-scale, high intensity fires posing a threat to life, property, and natural resources including wildlife and special status plant populations and habitats. High-intensity, stand-replacing fires have the potential to seriously damage soils and native vegetation. In addition, an increase in the number of large high intensity fires throughout the nation's forests, has resulted in significant safety risks to firefighters and higher costs for fire suppression (House of Representatives, Committee on Agriculture, Washington, DC, 1997).

Changes in plant community composition and structure are most pronounced in the dry and semi-Mesic forest types. Here, open park-like stands of fire-adapted ponderosa pine, western larch, and Douglas-fir have been replaced through ecological succession with dense and decadent stands of fire intolerant species such as grand fir. These species are more susceptible to high intensity wildland fire. In some dry meadows and grassland habitats, a shift in fire regimes has resulted in changes in ecological succession patterns, such as accelerated encroachment of trees and shrubs. A shift in plant species composition, due to invasion and spread of invasive herbaceous species, has also influenced fire regime and frequency.

## 3.6 Soils

Detailed soil information has been provided by the USDA Natural Resources Conservation Service (NRCS) in the “Soil Survey of Nez Perce-Lewis Counties, Idaho”. The following information is summarized from that document. For more detailed discussions on specific soil characteristics the Soil Survey should be consulted.

### 3.6.1 Physiography

The soil survey area conducted by the NRCS includes rolling basalt plateaus dissected by deep canyons. The plateaus are mantled with deposits of loess that are tens of feet thick in places. Some of the plateaus gradually slope northward and westward toward the confluence of the Snake and Clearwater Rivers, forming an open valley around Lewiston. An extensive and rugged area of deep canyons is in the southwestern part of the survey area, between the Snake and Salmon Rivers. The lowest elevation in the survey area, 720 feet, is at the confluence of the Snake and Clearwater Rivers. The highest elevation, 5,360 feet, is on the western rim of Craig Mountain. Most of the survey area consists of rolling plateaus that range in elevation from 2,000 to 4,000 feet.

### 3.6.2 Soil Map Unit Descriptions

These Soil Map Unit Descriptions are mapped in Appendix I with labels corresponding to the following titles of each soil association. The ID numbers listed correspond with map unit ID numbers on the maps.

#### 3.6.2.1 Soils on Dissected Alluvial Terraces

Number of map units: 1

Percentage of survey area: 2 percent

##### 3.6.2.1.1 Chard

*Nearly level to very steep, very deep, well drained soils that formed in alluvium*

*Percentage of survey area: 2 percent*

*Landscape position: Dissected alluvial terraces*

*Slope range: 1 to 65 percent*

*Elevation: 740 to 1,360 feet*

*Frost-free season (32 degrees F): 170 to 190 days*

*Average annual precipitation: 12 to 15 inches*

*Minor components: Urban land, Wistona and Tammany soils*

*Present uses: Cropland, building site development, rangeland*

*Limitations to use: Droughtiness, limited average annual precipitation, hazard of erosion, sandy substratum, slope in some areas*

#### 3.6.2.2 Soils on Plateaus

Number of map units: 8

Percentage of survey area: 64 percent

##### 3.6.2.2.1 Broadax-Oliphant

*Very deep, well drained soils that have accumulations of carbonates and formed in loess*

*Percentage of survey area: 7 percent*

*Landscape position:* Broadax soils—sides of hills on plateaus, generally at higher elevations; Oliphant soils—commonly north- and east-facing side slopes of hills on plateaus, generally at lower elevations  
*Slope range:* 1 to 40 percent  
*Elevation:* 1,200 to 2,900 feet  
*Frost-free season (32 degrees F):* 140 to 180 days  
*Average annual precipitation:* 13 to 20 inches  
*Minor components:* Endicott, Slickpoo, Hatwai, Bryden, Redmore, Calouse, Nez Perce, Stember, Athena, Alpowa, and Licksillet soils  
*Present uses:* Cropland, building site development, rangeland  
*Limitations to use:* Hazard of erosion, limited average annual precipitation in some areas, strong alkalinity in some areas

#### **3.6.2.2.2 Naff-Palouse-Thatuna**

*Very deep, well drained and moderately well drained, warm soils that formed in loess*  
*Percentage of survey area:* 10 percent  
*Landscape position:* Naff soils—convex side slopes of hills on plateaus; Palouse soils—concave side slopes of hills on plateaus; Thatuna soils plane to concave side slopes of hills on plateaus  
*Slope range:* 2 to 40 percent  
*Elevation:* 1,800 to 2,900 feet  
*Frost-free season (32 degrees F):* 110 to 160 days  
*Average annual precipitation:* 18 to 22 inches  
*Minor components:* Waha, Athena, Tilma, Calouse, Garfield, Latahco, and Linville soils  
*Present use:* Cropland  
*Limitations to use:* Hazard of erosion, seasonal perched water table in some areas

#### **3.6.2.2.3 Uhlorn-Nez Perce**

*Very deep, well drained and moderately well drained soils that have a high content of organic matter in the surface layer and formed in loess*  
*Percentage of survey area:* 14 percent  
*Landscape position:* Uhlorn soils—side slopes of hills on plateaus, commonly on north- and east-facing slopes; Nez Perce soils—summits, shoulders, and footslopes of hills on plateaus, commonly in plane to convex areas (fig. 3)  
*Slope range:* 1 to 20 percent  
*Elevation:* 2,600 to 4,100 feet  
*Frost-free season (32 degrees F):* 100 to 140 days  
*Average annual precipitation:* 20 to 24 inches  
*Minor components:* Vollmer, Mohler, Gwin, Watama, Flybow, Westlake, and Latahco soils  
*Present use:* Cropland  
*Limitations to use:* Hazard of erosion, seasonal perched water table in some areas

#### **3.6.2.2.4 Southwick-Driscoll-Larkin**

*Very deep, moderately well drained and well drained soils that formed in loess*  
*Percentage of survey area:* 11 percent  
*Landscape position:* Southwick soils—plane to concave side slopes of hills on plateaus, commonly on north- and east-facing slopes; Driscoll soils—plane to convex side slopes and summits of hills on plateaus, commonly on south- and west-facing slopes; Larkin soils—plane to concave side slopes of hills on plateaus  
*Slope range:* 2 to 25 percent  
*Elevation:* 2,300 to 3,400 feet  
*Frost-free season (32 degrees F):* 100 to 130 days  
*Average annual precipitation:* 22 to 25 inches  
*Minor components:* Jacket, Lauby, Bluesprin, and Wilkins soils  
*Present uses:* Cropland, woodland, grazeable woodland  
*Limitations to use:* Hazard of erosion, seasonal perched water table in some areas

#### **3.6.2.2.5 Taney-Setters**

*Moderately deep to a fragipan and very deep, moderately well drained soils that formed in loess*

*Percentage of survey area:* 10 percent

*Landscape position:* Taney soils—plane to concave side slopes of hills on plateaus, commonly on north- and east-facing slopes; Setters soils plane to convex side slopes and summits of hills on plateaus, commonly on south- and west-facing slopes

*Slope range:* 2 to 30 percent

*Elevation:* 2,300 to 4,200 feet

*Frost-free season (32 degrees F):* 100 to 120 days

*Average annual precipitation:* 23 to 26 inches

*Minor components:* Joel, Carlinton, Johnson, Kruse, Wilkins, Cavendish, Larabee, and Labuck soils

*Present uses:* Cropland, hayland, woodland, grazeable woodland, pastureland

*Limitations to use:* Hazard of erosion, seasonal perched water table in some areas, short growing season, restricted rooting depth

#### **3.6.2.2.6 Joel-Boles**

*Very deep, well drained and moderately well drained, cool soils that formed in loess*

*Percentage of survey area:* 3 percent

*Landscape position:* Joel soils—plane to concave side slopes of hills on plateaus, commonly on north and east-facing slopes; Boles soils—summits and shoulders of hills on plateaus

*Slope range:* 1 to 20 percent

*Elevation:* 4,000 to 4,600 feet

*Frost-free season (32 degrees F):* 80 to 100 days

*Average annual precipitation:* 22 to 26 inches

*Minor components:* Wilkins, Sweiting, and Zaza soils

*Present uses:* Cropland, woodland, grazeable woodland, hayland, pastureland

*Limitations to use:* Hazard of erosion, short growing season, seasonal perched water table in some areas, restricted rooting depth in some areas

#### **3.6.2.2.7 Cramont-Talmaks**

*Very deep, well drained soils that formed in loess, volcanic ash, and material weathered from basalt*

*Percentage of survey area:* 6 percent

*Landscape position:* Cramont soils—side slopes and broad ridges of hills on high plateaus, commonly in plane to convex areas; Talmaks soils—side slopes and summits of hills on high plateaus, commonly on north- and east-facing slopes

*Slope range:* 2 to 20 percent

*Elevation:* 4,100 to 5,000 feet

*Frost-free season (32 degrees F):* 60 to 80 days

*Average annual precipitation:* 24 to 28 inches

*Minor components:* Culdesac, Seddow, Zaza, and Maloney soils, Aquolls, Sweiting and Carlinton soils

*Present uses:* Woodland, grazeable woodland, pastureland

*Limitations to use:* Hazard of erosion, short growing season

#### **3.6.2.2.8 Shilla-Seddow-Larabee**

*Deep and moderately deep, well drained soils that formed in volcanic ash and material weathered from basalt*

*Percentage of survey area:* 3 percent

*Landscape position:* Shilla soils—side slopes and summits of hills on high plateaus; Seddow soils—side slopes of hills on high plateaus, commonly on south- and west-facing slopes; Larabee soils—south- and west-facing side slopes of hills on high plateaus

*Slope range:* 2 to 40 percent

*Elevation:* 4,200 to 5,300 feet

*Frost-free season (32 degrees F):* 60 to 80 days

*Average annual precipitation:* 26 to 28 inches  
*Minor components:* Zaza soils; Aquolls; Webbridge, Agatha, Cramont, and Culdesac soils  
*Present uses:* Woodland, grazeable woodland  
*Limitations to use:* Depth to bedrock, hazard of erosion, short growing season

### **3.6.2.3 Soils on Canyonsides**

Number of map units: 4

Percentage of survey area: 34 percent

#### **3.6.2.3.1 Lickskillet-Limekiln-Crowers**

*Shallow and very deep, well drained, medium textured soils that have an accumulation of carbonates and formed in loess and in colluvium derived from basalt*  
*Percentage of survey area:* 6 percent  
*Landscape position:* Lickskillet and Limekiln soils—south- and west-facing canyonsides; Crowers soils—north- and east-facing canyonsides (fig. 4)  
*Slope range:* 35 to 80 percent  
*Elevation:* 740 to 2,800 feet  
*Frost-free season (32 degrees F):* 160 to 190 days  
*Average annual precipitation:* 12 to 16 inches  
*Minor components:* Rock outcrop, Entic Haploxerolls, Haploxerolls, Chard soils  
*Present uses:* Rangeland, wildlife habitat  
*Limitations to use:* Steepness of slope, depth to bedrock in some areas, hazard of erosion, Rock outcrop in some areas

#### **3.6.2.3.2 Kettenbach-Linville**

*Moderately deep and very deep, well drained, moderately fine textured and medium textured, warm soils that formed in loess and in colluvium derived from basalt*  
*Percentage of survey area:* 17 percent  
*Landscape position:* Kettenbach soils—south- and west-facing canyonsides; Linville soils—north- and east-facing canyonsides (fig. 5)  
*Slope range:* 25 to 90 percent  
*Elevation:* 800 to 4,000 feet  
*Frost-free season (32 degrees F):* 120 to 160 days  
*Average annual precipitation:* 15 to 22 inches  
*Minor components:* Keuterville and Gwin soils; Rock outcrop; Meland, Klickson, Waha, Immig, Bridgewater, Lapwai, Flybow, Jacket, Almota, Bakeoven, Watama, Athena, and Hatwai soils  
*Present uses:* Rangeland, wildlife habitat  
*Limitations to use:* Steepness of slope, hazard of erosion, depth to bedrock in some areas

#### **3.6.2.3.3 Klickson-Hooverton**

*Very deep and moderately deep, well drained, medium textured to moderately fine textured, cool and warm soils that formed in loess and in colluvium derived from basalt*  
*Percentage of survey area:* 9 percent  
*Landscape position:* Klickson soils—north- and east-facing canyonsides; Hooverton soils—south- and west-facing canyonsides (fig. 6)  
*Slope range:* 35 to 90 percent  
*Elevation:* 1,500 to 5,300 feet  
*Frost-free season (32 degrees F):* 70 to 120 days  
*Average annual precipitation:* 22 to 28 inches  
*Minor components:* Mallory, Larabee, Gwin, Jacket, Webbridge, and Agatha soils  
*Present uses:* Woodland, grazeable woodland, rangeland, wildlife habitat

*Limitations to use:* Steepness of slope, depth to bedrock in some areas, hazard of erosion, short growing season

#### **3.6.2.3.4 Johnson-Dragnot**

*Very deep and moderately deep, well drained, moderately fine textured to moderately coarse textured soils that formed in granitic colluvium*

*Percentage of survey area:* 2 percent

*Landscape position:* Johnson soils—north- and east-facing canyonsides; Dragnot soils—south and west-facing canyonsides

*Slope range:* 40 to 70 percent

*Elevation:* 1,000 to 3,000 feet

*Frost-free season (32 degrees F):* 80 to 150 days

*Average annual precipitation:* 22 to 26 inches

*Minor components:* Uvi, Ahsahka, and Klickson soils

*Present uses:* Woodland, grazeable woodland, hayland, pastureland

*Limitations to use:* Steepness of slope, hazard of erosion, depth to bedrock in some areas

### **3.7 Hydrology**

The Idaho Water Resource Board is charged with the development of the Idaho Comprehensive State Water Plan. Included in the State Water Plan are the statewide water policy plan and component basin and water body plans which cover specific geographic areas of the state (IDEQ 2003). The Idaho Department of Water Resources has prepared General Lithologies of the Major Ground Water Flow Systems in Idaho. The majority of Lewis County has not been designated by the IWRB as a ground water system. The state may assign or designate beneficial uses for particular Idaho water bodies to support. These beneficial uses are identified in sections 3.35 and 100.01 - .05 of the Idaho water quality standards (WQS). These uses include:

- **Aquatic Life Support:** cold water biota, seasonal cold water biota, warm water biota, and salmonid spawning;
- **Contact Recreation:** primary (swimming) and secondary (boating);
- **Water Supply:** domestic, agricultural, and industrial; and
- **Wildlife Habitat and Aesthetics.**

While there may be competing beneficial uses in streams, federal law requires DEQ to protect the most sensitive of these beneficial uses (IDEQ 2003).

The geology and soils of this region lead to moderate moisture infiltration. Slopes are flat to moderate to steep, however, headwater characteristics of this watershed lead to a high degree of infiltration as opposed to a propensity for overland flow. Thus sediment delivery efficiency of first and third order streams is fairly low on stable soils. The bedrock is typically well fractured and moderately soft. This fracturing allows excessive soil moisture to rapidly infiltrate into the rock and thus surface runoff is rare. Natural mass stability hazards associated with slides are low. Natural sediment yields are low for these watersheds. However, disrupted vegetation patterns from logging (soil compaction) and wildland fire (especially hot fires that increase soil hydrophobic characteristics), can lead to increased surface runoff and debris flow to stream channels.

A correlation to mass wasting due to the removal of vegetation caused by logging, grazing, and high intensity wildland fire has been documented. Burned vegetation can result in changes in soil moisture and loss of rooting strength that can result in slope instability, especially on slopes

greater than 30%. The greatest watershed impacts from increased sediment will be in the lower gradient, depositional stream reaches.

Timberlands in the region have been extensively harvested for the past four decades, therefore altering riparian function by removing streamside shade and changing historic sediment deposition. Riparian function and channel characteristics have been altered by ranch and residential areas as well. The current conditions of wetlands and floodplains are variable. Some wetlands and floodplains have been impacted by past management activities.

### **3.8 Air Quality**

The primary means by which the protection and enhancement of air quality is accomplished is through implementation of National Ambient Air Quality Standards (NAAQS). These standards address six pollutants known to harm human health including ozone, carbon monoxide, particulate matter, sulfur dioxide, lead, and nitrogen oxides (USDA Forest Service 2000).

Smoke emissions from fires potentially affect an area and the airsheds that surround it. Climatic conditions affecting air quality in central Idaho are governed by a combination of factors. Large-scale influences include latitude, altitude, prevailing hemispheric wind patterns, and mountain barriers. At a smaller scale, topography and vegetation cover also affect air movement patterns. In Lewis County, winds are generally from a southwesterly direction throughout the year. Air quality in the area and surrounding airshed is generally good to excellent. However, locally adverse conditions can result from occasional wildland fires in the summer and fall, and prescribed fire and agricultural burning in the spring and fall. All major river drainages are subject to temperature inversions which trap smoke and affect dispersion, causing local air quality problems. This occurs most often during the summer and fall months.

Lewis County is in the North Idaho Airshed Units 12A, 12B, & 13: Montana/Idaho Airshed Group Operating Guide (Levinson 2002). An airshed is a geographical area which is characterized by similar topography and weather patterns (or in which atmospheric characteristics are similar, e.g., mixing height and transport winds). The USDA Forest Service, Bureau of Land Management, and the Idaho Department of Lands are all members of the Montana/Idaho State Airshed Group, which is responsible for coordinating burning activities to minimize or prevent impacts from smoke emissions. Prescribed burning must be coordinated through the Missoula Monitoring Unit, which coordinates burn information, provides smoke forecasting, and establishes air quality restrictions for the Montana/Idaho Airshed Group. The Monitoring Unit issues daily decisions which may restrict burning when atmospheric conditions are not conducive to good smoke dispersion. Burning restrictions are issued for airsheds, impact zones, and specific projects. The monitoring unit is active March through November. Each Airshed Group member is also responsible for smoke management all year.

The Clean Air Act, passed in 1963 and amended in 1977, is the primary legal authority governing air resource management. The act established a process for designation of Class I and Class II areas for air quality management. Class I areas receive the highest level of protection and numerical thresholds for pollutants are most restrictive for this Class.

Some of the Class I airsheds in the immediate area include:

- **Hell's Canyon Wilderness Area:** A sensitive Class I airshed, the Hell's Canyon Wilderness Area (86,116 acres), is located approximately 35 miles south of Lewis County. This area is managed for high scenic and recreation values.
- **Selway-Bitterroot Wilderness:** Another Class I Airshed nearby is the Selway-Bitterroot Wilderness (1.1 million acres). The Selway-Bitterroot Wilderness is 30 miles east of Kamiah, directly in the path of the prevailing winds crossing over Lewis County.

All of the communities within Lewis County could be affected by smoke or regional haze from burning activities in the region. Idaho Department of Environmental Quality maintains Air Pollution Monitoring Sites throughout Idaho. The Air Pollution Monitoring program monitors all of the six criteria pollutants. Measurements are taken to assess areas where there may be a problem, and to monitor areas that already have problems. The goal of this program is to control areas where problems exist and to try to keep other areas from becoming problem air pollution areas (Louks 2001).

The Clean Air Act provides the principal framework for national, state, and local efforts to protect air quality. Under the Clean Air Act, OAQPS (Organization for Air Quality Protection Standards) is responsible for setting standards, also known as national ambient air quality standards (NAAQS), for pollutants which are considered harmful to people and the environment. OAQPS is also responsible for ensuring these air quality standards are met, or attained (in cooperation with state, Tribal, and local governments) through national standards and strategies to control pollutant emissions from automobiles, factories, and other sources (Louks 2001).

Air quality measurement stations juxtaposed near Lewis County include Kamiah, Grangeville (16 miles to the southeast), Moscow (31 miles to the northwest), and Lewiston (13 miles to the northwest).

## **3.9 Wildland-Urban Interface**

### **3.9.1 People and Structures**

The Wildland-Urban Interface has gained attention through efforts targeted at wildfire mitigation, however, this analysis technique is also useful when considering other hazards because the concept looks at where people and structures are concentrated in any particular region. For Lewis County, the WUI shows the relative concentrations of structures scattered across the county.

A key component in meeting the underlying need for protection of people and structures is the protection and treatment of hazards in the wildland-urban interface. The wildland-urban interface refers to areas where wildland vegetation meets urban developments, or where forest fuels meet urban fuels in the case of wildfires (such as houses). These areas encompass not only the interface (areas immediately adjacent to urban development), but also the continuous slopes that lead directly to a risk to urban developments be it from wildfire, landslides, or floods. Reducing the hazard in the wildland urban interface requires the efforts of federal, state, local agencies, and private individuals (Norton 2002). "The role of [most] federal agencies in the wildland-urban interface includes wildland fire fighting, hazard fuels reduction, cooperative prevention and education and technical experience. Structural fire protection [during a wildfire] in the wildland urban interface is [largely] the responsibility of Tribal, state, and local governments" (USFS 2001). Property owners share a responsibility to protect their residences and businesses and minimize danger by creating defensible areas around them and taking other measures to minimize the risks to their structures (USFS 2001). With treatment, a wildland-urban interface can provide firefighters a defensible area from which to suppress wildland fires or defend communities against other hazard risks. In addition, a wildland-urban interface that is properly thinned will be less likely to sustain a crown fire that enters or originates within it (Norton 2002).

By reducing hazardous fuel loads, ladder fuels, and tree densities, and creating new and reinforcing defensible space, landowners would protect the wildland-urban interface, the biological resources of the management area, and adjacent property owners by:

- minimizing the potential of high-severity ground or crown fires entering or leaving the area;
- reducing the potential for firebrands (embers carried by the wind in front of the wildfire) impacting the WUI. Research indicates that flying sparks and embers (firebrands) from a crown fire can ignite additional wildfires as far as 1¼ miles away during periods of extreme fire weather and fire behavior (McCoy *et al.* 2001 as cited in Norton 2002);
- improving defensible space in the immediate areas for suppression efforts in the event of wildland fire.

Four wildland-urban interface conditions have been identified for use in wildfire control efforts (Norton 2002). These include the Interface Condition, Intermix Condition, Occluded Condition, and Rural Condition. Descriptions of each are as follows:

- **Interface Condition** – a situation where structures abut wildland fuels. There is a clear line of demarcation between the structures and the wildland fuels along roads or back fences. The development density for an interface condition is usually 3+ structures per acre;
- **Intermix Condition** – a situation where structures are scattered throughout a wildland area. There is no clear line of demarcation, the wildland fuels are continuous outside of and within the developed area. The development density in the intermix ranges from structures very close together to one structure per 40 acres;
- **Occluded Condition** – a situation, normally within a city, where structures abut an island of wildland fuels (park or open space). There is a clear line of demarcation between the structures and the wildland fuels along roads and fences. The development density for an occluded condition is usually similar to that found in the interface condition and the occluded area is usually less than 1,000 acres in size; and
- **Rural Condition** – a situation where the scattered small clusters of structures (ranches, farms, resorts, or summer cabins) are exposed to wildland fuels. There may be miles between these clusters.

The location of structures in Lewis County have been mapped and are presented on a variety of maps in this analysis document; specifically in Appendix I. The location of all structures was determined by examining two sets of remotely sensed images. The more detailed information was garnered from digital ortho-photos at a resolution of 1 meter (from 1998). For those areas not covered by the 1 meter DOQQ images, SPOT satellite imagery at a resolution of 10 meters was used (from 2002). These records were augmented with data collected on hand-held GPS receivers to record the location of structures, especially in areas where new housing developments were seen.

All structures are represented by a “dot” on the map. No differentiation is made between a garage and a home, or a business and a storage building. The density of structures and their specific locations in this management area are critical in defining where the potential exists for casualty loss in the event of a disaster in the region.

By evaluating this structure density, we can define WUI areas on maps by using mathematical formulae and population density indexes to define the WUI based on where structures are located. The resulting population density indexes create concentric circles showing high density areas of Interface and Intermix WUI, as well as Rural WUI (as defined by Secretary Norton of the Department of Interior). This portion of the analysis allows us to “see” where the highest concentrations of structures are located in reference to high risk landscapes, limiting infrastructure, and other points of concern.

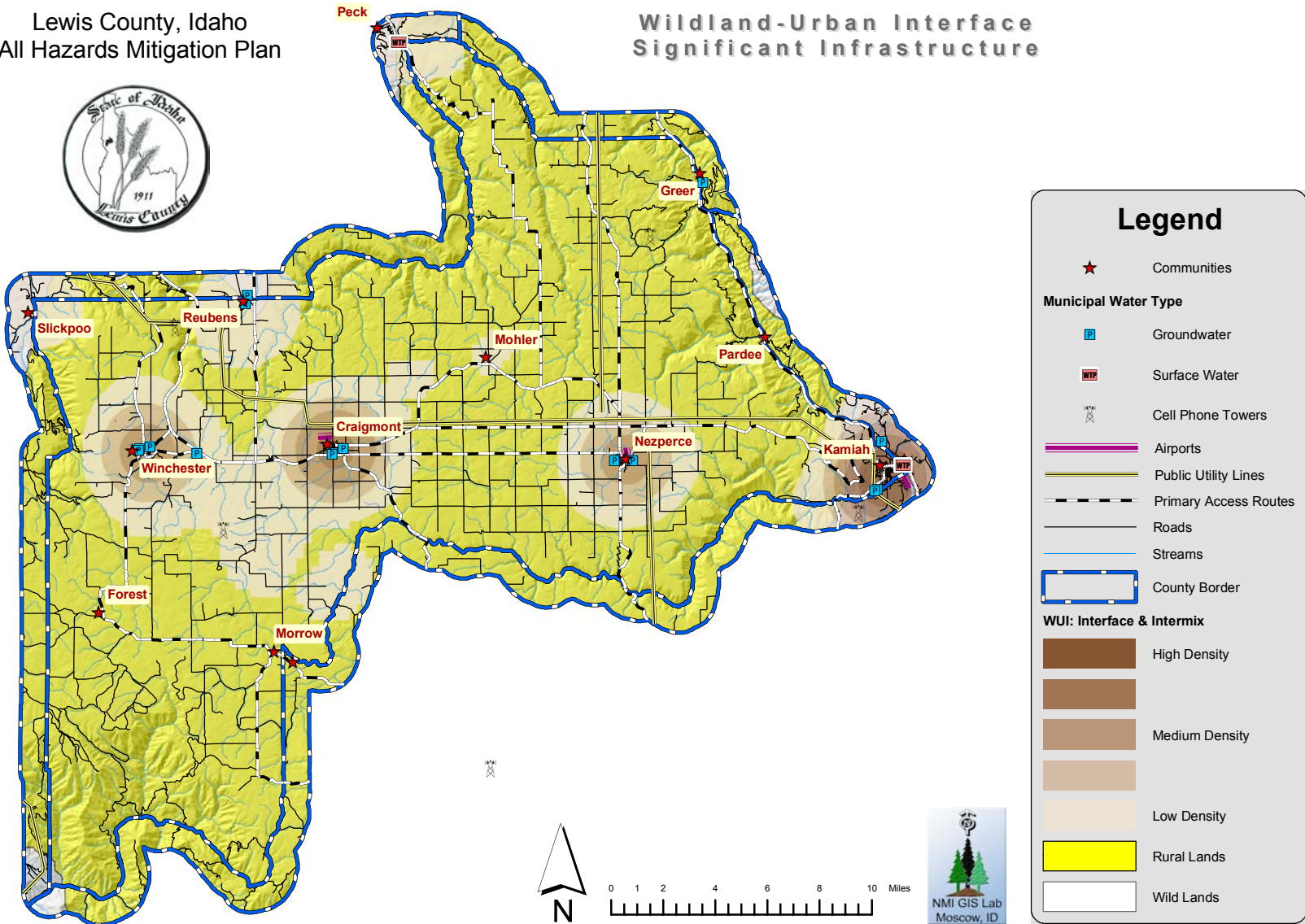
It is critical to understand that in the protection of people, structures, infrastructure, and unique ecosystems, this portion of the analysis only serves to identify structures and by some extension the people that inhabit them. It does not define the location of infrastructure and unique ecosystems. Other analysis tools will be used for those items.

**Figure 3.1. Wildland-Urban Interface in Lewis County:**

Lewis County, Idaho  
All Hazards Mitigation Plan



Wildland-Urban Interface  
Significant Infrastructure



## Chapter 4: Risk and Preparedness Assessments

### 4 Overview

#### 4.1 *Wildland Fire Characteristics*

An informed discussion of fire mitigation is not complete until basic concepts that govern fire behavior are understood. In the broadest sense, wildland fire behavior describes how fires burn; the manner in which fuels ignite, how flames develop and how fire spreads across the landscape. The three major physical components that determine fire behavior are the fuels supporting the fire, the topography in which the fire is burning, and the weather and atmospheric conditions during a fire event. At the landscape level, both topography and weather are beyond our control. We are powerless to control winds, temperature, relative humidity, atmospheric instability, slope, aspect, elevation, and landforms. It is beyond our control to alter these conditions, and thus impossible to alter fire behavior through their manipulation. When we attempt to alter how fires burn, we are left with manipulating the third component of the fire environment; the fuels which support the fire. By altering fuel loading and fuel continuity across the landscape, we have the best opportunity to determine how fires burn.

A brief description of each of the fire environment elements follows in order to illustrate their effect on fire behavior.

##### 4.1.1 Weather

Weather conditions contribute significantly to determining fire behavior. Wind, moisture, temperature, and relative humidity ultimately determine the rates at which fuels dry and vegetation cures, and whether fuel conditions become dry enough to sustain an ignition. Once conditions are capable of sustaining a fire, atmospheric stability and wind speed and direction can have a significant affect on fire behavior. Winds fan fires with oxygen, increasing the rate at which fire spreads across the landscape. Weather is the most unpredictable component governing fire behavior, constantly changing in time and across the landscape.

##### 4.1.2 Topography

Fires burning in similar fuel conditions burn dramatically different under different topographic conditions. Topography alters heat transfer and localized weather conditions, which in turn influence vegetative growth and resulting fuels. Changes in slope and aspect can have significant influences on how fires burn. Generally speaking, north slopes tend to be cooler, wetter, more productive sites. This can lead to heavy fuel accumulations, with high fuel moistures, later curing of fuels, and lower rates of spread. The combination of light fuels and dry sites lead to fires that typically display the highest rates of spread. In contrast, south and west slopes tend to receive more direct sun, and thus have the highest temperatures, lowest soil and fuel moistures, and lightest fuels. These slopes also tend to be on the windward side of mountains. Thus these slopes tend to be “available to burn” a greater portion of the year.

Slope also plays a significant roll in fire spread, by allowing preheating of fuels upslope of the burning fire. As slope increases, rate of spread and flame lengths tend to increase. Therefore, we can expect the fastest rates of spread on steep, warm south and west slopes with fuels that are exposed to the wind.

### **4.1.3 Fuels**

Fuel is any material that can ignite and burn. Fuels describe any organic material, dead or alive, found in the fire environment. Grasses, brush, branches, logs, logging slash, forest floor litter, conifer needles, and buildings are all examples. The physical properties and characteristics of fuels govern how fires burn. Fuel loading, size and shape, moisture content and continuity and arrangement all have an effect on fire behavior. Generally speaking, the smaller and finer the fuels, the faster the potential rate of fire spread. Small fuels such as grass, needle litter and other fuels less than a quarter inch in diameter are most responsible for fire spread. In fact, “fine” fuels, with high surface to volume ratios, are considered the primary carriers of surface fire. This is apparent to anyone who has ever witnessed the speed at which grass fires burn. As fuel size increases, the rate of spread tends to decrease, as surface to volume ratio decreases. Fires in large fuels generally burn at a slower rate, but release much more energy, burn with much greater intensity. This increased energy release, or intensity, makes these fires more difficult to control. Thus, it is much easier to control a fire burning in grass than to control a fire burning in timber.

When burning under a forest canopy, the increased intensities can lead to torching (single trees becoming completely involved) and potentially development of crown fire. That is, they release much more energy. Fuels are found in combinations of types, amounts, sizes, shapes, and arrangements. It is the unique combination of these factors, along with the topography and weather, which determine how fires will burn.

The study of fire behavior recognizes the dramatic and often-unexpected affect small changes in any single component has on how fires burn. It is impossible to speak in specific terms when predicting how a fire will burn under any given set of conditions. However, through countless observations and repeated research, the some of the principles that govern fire behavior have been identified and are recognized.

## **4.2 Wildfire Hazards**

### **4.2.1 Wildfire Ignition Profile**

Fire was once an integral function of the majority of ecosystems in Idaho. The seasonal cycling of fire across the landscape was as regular as the July, August and September lightning storms plying across the canyons and mountains. Depending on the plant community composition, structural configuration, and buildup of plant biomass, fire resulted from ignitions with varying intensities and extent across the landscape. Shorter return intervals between fire events often resulted in less dramatic changes in plant composition (Johnson 1998). The fires burned from 1 to 47 years apart, with most at 5- to 20-year intervals (Barrett 1979). With infrequent return intervals, plant communities tended to burn more severely and be replaced by vegetation different in composition, structure, and age (Johnson *et al.* 1994). Native plant communities in this region developed under the influence of fire, and adaptations to fire are evident at the species, community, and ecosystem levels. Fire history data (from fire scars and charcoal deposits) suggest fire has played an important role in shaping the vegetation in the Columbia Basin for thousands of years (Steele *et al.* 1986, Agee 1993).

Detailed records of fire ignition and extent have been compiled by the USDA Forest Service, Clearwater and Nez Perce National Forests from 1981-2000. In addition, the Idaho Department of Lands keeps records of fire ignitions dating from 1983 to 2002. Using this data on past fire extents and fire ignition data, the occurrence of wildland fires in the region of Lewis County has been evaluated.

The following (Table 4.1) is a summary of fire ignitions within Lewis County as recorded by the USDA Forest Service for the period 1981-2000.

**Table 4.1. Wildfire Ignition Profile of Lewis County compiled by the US Forest Service, Clearwater & Nez Perce National Forests.**

| LAT         | LONG          | MONTH | DAY | YEAR | ACREAGE | CAUSE     |
|-------------|---------------|-------|-----|------|---------|-----------|
| 46.31831194 | -116.42093740 | 4     | 25  | 1981 | 100.00  | Mancaused |
| 46.31831194 | -116.42093740 | 7     | 8   | 1981 | 10.00   | Mancaused |
| 46.41669849 | -116.30000280 | 7     | 18  | 1981 | 10.00   | Lightning |
| 46.31832692 | -116.46284480 | 8     | 17  | 1982 | 10.00   | Mancaused |
| 46.34722522 | -116.19063650 | 9     | 17  | 1982 | 10.00   | Mancaused |
| 46.30381892 | -116.46294550 | 4     | 24  | 1983 | 50.00   | Mancaused |
| 46.28924562 | -116.54576230 | 4     | 24  | 1983 | 60.00   | Mancaused |
| 46.37088299 | -116.17682350 | 6     | 23  | 1983 | 0.50    | Mancaused |
| 46.22521928 | -116.62177340 | 7     | 4   | 1983 | 0.10    | Mancaused |
| 46.32753635 | -116.57486370 | 7     | 18  | 1983 | 20.00   | Mancaused |
| 46.23071698 | -116.62956680 | 7     | 30  | 1983 | 30.00   | Mancaused |
| 46.28355501 | -116.61646260 | 8     | 7   | 1983 | 0.10    | Lightning |
| 46.45831522 | -116.32478030 | 8     | 10  | 1983 | 0.10    | Lightning |
| 46.27630835 | -116.12062700 | 9     | 8   | 1983 | 0.10    | Lightning |
| 46.32012112 | -116.46544380 | 9     | 13  | 1983 | 70.00   | Mancaused |
| 46.30177671 | -116.19876680 | 9     | 23  | 1983 | 30.00   | Mancaused |
| 46.31287474 | -116.42880860 | 9     | 24  | 1983 | 43.00   | Mancaused |
| 46.37638487 | -116.21174890 | 5     | 26  | 1984 | 20.00   | Mancaused |
| 46.25859352 | -116.04723690 | 7     | 3   | 1984 | 0.10    | Mancaused |
| 46.23248884 | -116.52238450 | 7     | 13  | 1984 | 0.10    | Mancaused |
| 46.21804859 | -116.17258010 | 7     | 20  | 1984 | 18.00   | Mancaused |
| 46.18681718 | -116.42113190 | 7     | 24  | 1984 | 0.10    | Mancaused |
| 46.08364098 | -116.68021290 | 7     | 29  | 1984 | 0.10    | Lightning |
| 46.05426316 | -116.63243130 | 7     | 29  | 1984 | 0.10    | Lightning |
| 46.35623213 | -116.19861640 | 8     | 3   | 1984 | 0.10    | Lightning |
| 46.30930079 | -116.47083580 | 8     | 4   | 1984 | 0.50    | Lightning |
| 46.35262604 | -116.18818390 | 8     | 5   | 1984 | 0.10    | Lightning |
| 46.20316045 | -116.59576850 | 8     | 5   | 1984 | 0.10    | Lightning |
| 46.40743117 | -116.23564690 | 8     | 10  | 1984 | 0.10    | Lightning |
| 46.23632923 | -116.05790710 | 8     | 10  | 1984 | 0.10    | Lightning |
| 46.39999945 | -116.21669770 | 8     | 11  | 1984 | 0.00    | Lightning |
| 46.39641931 | -116.16723290 | 8     | 11  | 1984 | 0.10    | Lightning |
| 46.24713358 | -116.51198890 | 8     | 18  | 1984 | 0.10    | Mancaused |
| 46.22499462 | -116.47087620 | 8     | 18  | 1984 | 6.00    | Mancaused |
| 46.21405915 | -116.47088750 | 8     | 18  | 1984 | 0.10    | Mancaused |
| 46.11710967 | -116.71069660 | 8     | 20  | 1984 | 0.10    | Mancaused |
| 46.30540998 | -116.57992830 | 8     | 26  | 1984 | 3.00    | Mancaused |
| 46.19969613 | -116.42905560 | 8     | 27  | 1984 | 66.00   | Mancaused |
| 46.20342396 | -116.40289710 | 8     | 29  | 1984 | 10.00   | Mancaused |
| 46.29187019 | -116.11364520 | 9     | 13  | 1984 | 110.00  | Mancaused |
| 46.14901467 | -116.65802140 | 9     | 15  | 1984 | 0.10    | Mancaused |

**Table 4.1. Wildfire Ignition Profile of Lewis County compiled by the US Forest Service, Clearwater & Nez Perce National Forests.**

| LAT         | LONG          | MONTH | DAY | YEAR | ACREAGE | CAUSE     |
|-------------|---------------|-------|-----|------|---------|-----------|
| 46.26890147 | -116.05787300 | 9     | 30  | 1984 | 10.00   | Mancaused |
| 46.46193872 | -116.42848900 | 10    | 3   | 1984 | 0.10    | Mancaused |
| 46.33461966 | -116.24047970 | 10    | 4   | 1984 | 1.00    | Mancaused |
| 46.24999994 | -116.08329720 | 5     | 24  | 1985 | 0.00    | Lightning |
| 46.23273802 | -116.00108760 | 6     | 10  | 1985 | 0.10    | Mancaused |
| 46.31666680 | -116.18333460 | 6     | 23  | 1985 | 30.00   | Mancaused |
| 46.19234892 | -116.40810710 | 6     | 28  | 1985 | 0.30    | Mancaused |
| 46.23499904 | -116.59444400 | 7     | 2   | 1985 | 1.00    | Mancaused |
| 46.25600693 | -116.07983180 | 7     | 3   | 1985 | 12.00   | Mancaused |
| 46.23270455 | -116.06314860 | 7     | 4   | 1985 | 0.10    | Mancaused |
| 46.41464115 | -116.18994450 | 7     | 5   | 1985 | 0.10    | Mancaused |
| 46.26029754 | -116.09020990 | 7     | 7   | 1985 | 0.10    | Lightning |
| 46.19264429 | -116.71558760 | 7     | 9   | 1985 | 2.00    | Lightning |
| 46.12070956 | -116.71058110 | 7     | 9   | 1985 | 115.00  | Lightning |
| 46.16666412 | -116.58333600 | 7     | 13  | 1985 | 2.00    | Mancaused |
| 46.31666755 | -116.59444450 | 7     | 15  | 1985 | 1.00    | Mancaused |
| 46.31980346 | -116.61648050 | 7     | 21  | 1985 | 0.10    | Mancaused |
| 46.30162079 | -116.15698330 | 7     | 31  | 1985 | 2.00    | Lightning |
| 46.38556315 | -116.17442900 | 8     | 1   | 1985 | 0.10    | Mancaused |
| 46.01426227 | -116.51196600 | 8     | 5   | 1985 | 0.10    | Mancaused |
| 45.99940695 | -116.70446420 | 8     | 18  | 1985 | 0.10    | Mancaused |
| 46.41845235 | -116.31924030 | 8     | 24  | 1985 | 52.00   | Mancaused |
| 46.34178414 | -116.19825780 | 8     | 25  | 1985 | 0.10    | Mancaused |
| 46.34181529 | -116.19308150 | 8     | 25  | 1985 | 17.00   | Mancaused |
| 46.31591505 | -116.69592150 | 8     | 27  | 1985 | 50.00   | Lightning |
| 46.46195584 | -116.43375840 | 5     | 27  | 1986 | 0.10    | Lightning |
| 46.32727210 | -116.13589790 | 6     | 3   | 1986 | 1.00    | Lightning |
| 46.28720756 | -116.08441850 | 6     | 4   | 1986 | 1.00    | Lightning |
| 46.32014322 | -116.42356220 | 6     | 18  | 1986 | 5.00    | Lightning |
| 46.38332895 | -116.25000020 | 6     | 23  | 1986 | 1.00    | Mancaused |
| 46.28629795 | -116.12169200 | 6     | 30  | 1986 | 7.00    | Mancaused |
| 46.28329843 | -116.11669940 | 6     | 30  | 1986 | 7.00    | Mancaused |
| 46.33333233 | -116.16666440 | 7     | 20  | 1986 | 640.00  | Mancaused |
| 46.29841914 | -116.49166380 | 7     | 20  | 1986 | 2.00    | Mancaused |
| 46.30102415 | -116.13431360 | 7     | 30  | 1986 | 0.10    | Mancaused |
| 46.28888629 | -116.28555270 | 8     | 5   | 1986 | 1.00    | Mancaused |
| 46.36354889 | -116.15169500 | 8     | 10  | 1986 | 0.10    | Lightning |
| 46.33653625 | -116.44712300 | 8     | 10  | 1986 | 15.00   | Lightning |
| 46.23241701 | -116.69476950 | 8     | 10  | 1986 | 0.10    | Lightning |
| 46.23244364 | -116.68961230 | 8     | 10  | 1986 | 0.10    | Lightning |
| 46.22886008 | -116.67929440 | 8     | 10  | 1986 | 0.10    | Lightning |
| 46.21073998 | -116.69484000 | 8     | 10  | 1986 | 1.00    | Lightning |
| 46.23637178 | -116.00598000 | 8     | 10  | 1986 | 0.10    | Mancaused |

**Table 4.1. Wildfire Ignition Profile of Lewis County compiled by the US Forest Service, Clearwater & Nez Perce National Forests.**

| LAT         | LONG          | MONTH | DAY | YEAR | ACREAGE | CAUSE     |
|-------------|---------------|-------|-----|------|---------|-----------|
| 46.02875383 | -116.56902280 | 8     | 10  | 1986 | 0.10    | Lightning |
| 46.02503322 | -116.53275840 | 8     | 10  | 1986 | 0.10    | Lightning |
| 46.27262427 | -116.11557340 | 8     | 11  | 1986 | 4.00    | Lightning |
| 46.22542816 | -116.05281230 | 8     | 11  | 1986 | 0.10    | Lightning |
| 46.20335860 | -116.15150240 | 8     | 11  | 1986 | 0.10    | Lightning |
| 46.33819585 | -116.21425030 | 8     | 16  | 1986 | 8.00    | Mancaused |
| 46.24006733 | -116.00556290 | 8     | 20  | 1986 | 3.00    | Mancaused |
| 46.16666412 | -116.58333600 | 8     | 20  | 1986 | 20.00   | Mancaused |
| 46.21818427 | -116.01302240 | 8     | 25  | 1986 | 0.10    | Mancaused |
| 46.19597314 | -116.55910160 | 8     | 29  | 1986 | 0.10    | Lightning |
| 46.21073554 | -116.06825220 | 8     | 29  | 1986 | 0.10    | Mancaused |
| 46.19234587 | -116.15142040 | 8     | 29  | 1986 | 1.00    | Lightning |
| 46.40750527 | -116.28766000 | 9     | 9   | 1986 | 0.10    | Mancaused |
| 46.23612350 | -116.61646190 | 6     | 7   | 1987 | 0.10    | Mancaused |
| 46.24461920 | -116.04062950 | 6     | 24  | 1987 | 1.00    | Mancaused |
| 46.48369681 | -116.38673080 | 7     | 3   | 1987 | 0.10    | Mancaused |
| 46.23269093 | -116.05273980 | 7     | 14  | 1987 | 1.00    | Mancaused |
| 46.36720206 | -116.17310060 | 8     | 20  | 1987 | 0.10    | Mancaused |
| 46.31666457 | -116.59999880 | 8     | 23  | 1987 | 30.00   | Mancaused |
| 46.39655296 | -116.19921790 | 8     | 24  | 1987 | 0.10    | Lightning |
| 46.33088620 | -116.29276850 | 8     | 24  | 1987 | 0.10    | Lightning |
| 46.17787463 | -116.39746490 | 8     | 24  | 1987 | 0.10    | Lightning |
| 46.26539297 | -116.05261860 | 9     | 7   | 1987 | 0.10    | Mancaused |
| 46.24035464 | -116.02960840 | 9     | 7   | 1987 | 1.00    | Mancaused |
| 46.18132913 | -116.55902130 | 9     | 7   | 1987 | 0.10    | Mancaused |
| 46.28381537 | -116.48644440 | 9     | 8   | 1987 | 0.10    | Mancaused |
| 46.22907448 | -116.39759480 | 9     | 12  | 1987 | 5.00    | Mancaused |
| 46.31652364 | -116.46024200 | 9     | 14  | 1987 | 0.10    | Mancaused |
| 46.23248326 | -116.00957780 | 10    | 3   | 1987 | 0.10    | Mancaused |
| 46.21074663 | -116.07350230 | 10    | 5   | 1987 | 0.10    | Mancaused |
| 46.24709371 | -116.53262380 | 10    | 13  | 1987 | 3.00    | Mancaused |
| 46.25446623 | -116.62190290 | 10    | 27  | 1987 | 0.10    | Mancaused |
| 46.21446627 | -116.04746850 | 10    | 27  | 1987 | 0.10    | Mancaused |
| 46.10516982 | -116.58501440 | 1     | 1   | 1988 | 0.10    | Mancaused |
| 46.23248326 | -116.00957780 | 3     | 0   | 1988 | 1.00    | Mancaused |
| 46.16685612 | -116.55894780 | 4     | 14  | 1988 | 95.00   | Lightning |
| 46.38932386 | -116.18428260 | 6     | 17  | 1988 | 2.00    | Lightning |
| 46.37817936 | -116.19350070 | 6     | 17  | 1988 | 0.10    | Lightning |
| 46.23302403 | -116.02539900 | 6     | 17  | 1988 | 0.10    | Mancaused |
| 46.39278544 | -116.16198480 | 6     | 21  | 1988 | 0.50    | Mancaused |
| 46.39643619 | -116.16214340 | 8     | 12  | 1988 | 0.10    | Mancaused |
| 46.33108406 | -116.68563590 | 8     | 13  | 1988 | 35.00   | Mancaused |
| 46.21816785 | -116.04235930 | 8     | 13  | 1988 | 1.00    | Mancaused |

**Table 4.1. Wildfire Ignition Profile of Lewis County compiled by the US Forest Service, Clearwater & Nez Perce National Forests.**

| LAT         | LONG          | MONTH | DAY | YEAR | ACREAGE | CAUSE     |
|-------------|---------------|-------|-----|------|---------|-----------|
| 46.13760112 | -116.48596190 | 8     | 23  | 1988 | 0.10    | Mancaused |
| 46.31477862 | -116.50955600 | 8     | 25  | 1988 | 12.00   | Lightning |
| 46.19256130 | -116.66347390 | 8     | 25  | 1988 | 0.10    | Lightning |
| 46.30726761 | -116.13453970 | 9     | 1   | 1988 | 0.10    | Mancaused |
| 46.07597218 | -116.55868570 | 9     | 6   | 1988 | 0.10    | Mancaused |
| 46.33818805 | -116.19306510 | 9     | 14  | 1988 | 160.00  | Mancaused |
| 46.18892773 | -116.70515590 | 10    | 0   | 1988 | 0.10    | Mancaused |
| 46.26173417 | -116.52748010 | 10    | 6   | 1988 | 0.50    | Mancaused |
| 46.21057381 | -116.19342130 | 10    | 13  | 1988 | 1.00    | Mancaused |
| 46.20701844 | -116.11013940 | 7     | 2   | 1989 | 3.00    | Lightning |
| 46.38158432 | -116.17933630 | 7     | 4   | 1989 | 3.00    | Mancaused |
| 46.23610137 | -116.61123700 | 7     | 4   | 1989 | 0.50    | Mancaused |
| 46.37454462 | -116.38196650 | 7     | 14  | 1989 | 6.00    | Lightning |
| 46.20711745 | -116.70517430 | 7     | 14  | 1989 | 0.10    | Lightning |
| 46.05394105 | -116.50136820 | 7     | 14  | 1989 | 0.10    | Lightning |
| 46.47279843 | -116.36128680 | 7     | 19  | 1989 | 0.50    | Lightning |
| 46.29101053 | -116.32414660 | 7     | 20  | 1989 | 0.10    | Lightning |
| 46.20337060 | -116.14103630 | 7     | 20  | 1989 | 6.00    | Lightning |
| 46.39643619 | -116.16214340 | 7     | 26  | 1989 | 0.10    | Mancaused |
| 46.38925786 | -116.16637060 | 7     | 26  | 1989 | 1.00    | Lightning |
| 46.31667121 | -116.12483480 | 7     | 26  | 1989 | 24.00   | Lightning |
| 46.09777873 | -116.61672010 | 7     | 26  | 1989 | 0.80    | Lightning |
| 46.34173864 | -116.33997590 | 8     | 7   | 1989 | 5.00    | Mancaused |
| 46.26545445 | -116.11021530 | 8     | 10  | 1989 | 0.10    | Lightning |
| 46.01417911 | -116.57431860 | 8     | 10  | 1989 | 6.00    | Lightning |
| 46.34894148 | -116.13605060 | 8     | 12  | 1989 | 0.10    | Lightning |
| 46.14489171 | -116.54323580 | 8     | 12  | 1989 | 1.00    | Mancaused |
| 46.45107788 | -116.36636700 | 8     | 14  | 1989 | 3.00    | Lightning |
| 46.27646652 | -116.48642800 | 9     | 6   | 1989 | 3.20    | Mancaused |
| 46.22499462 | -116.47087620 | 9     | 10  | 1989 | 8.00    | Mancaused |
| 46.22506314 | -116.60097730 | 9     | 22  | 1989 | 1.00    | Mancaused |
| 46.23333429 | -116.03333290 | 9     | 25  | 1989 | 20.00   | Mancaused |
| 46.28371872 | -116.57975510 | 11    | 2   | 1989 | 3.00    | Mancaused |
| 46.34914965 | -116.21957750 | 3     | 30  | 1990 | 0.10    | Mancaused |
| 46.23983106 | -116.64270430 | 7     | 29  | 1990 | 0.20    | Lightning |
| 46.20903819 | -116.01283810 | 7     | 30  | 1990 | 0.20    | Lightning |
| 46.37161518 | -116.17226930 | 8     | 2   | 1990 | 0.10    | Mancaused |
| 46.37098404 | -116.20384470 | 8     | 9   | 1990 | 0.10    | Lightning |
| 46.36361074 | -116.18310290 | 8     | 9   | 1990 | 0.20    | Lightning |
| 46.35264763 | -116.18299450 | 8     | 9   | 1990 | 0.20    | Lightning |
| 46.34903426 | -116.18809090 | 8     | 9   | 1990 | 0.10    | Lightning |
| 46.34543155 | -116.20894020 | 8     | 9   | 1990 | 5.00    | Lightning |
| 46.34185965 | -116.21961320 | 8     | 9   | 1990 | 0.20    | Lightning |

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| LAT         | LONG          | MONTH | DAY | YEAR | ACREAGE | CAUSE     |
|-------------|---------------|-------|-----|------|---------|-----------|
| 46.33459315 | -116.17235720 | 8     | 9   | 1990 | 7.00    | Lightning |
| 46.34189869 | -116.17760210 | 8     | 11  | 1990 | 0.10    | Lightning |
| 46.22538822 | -116.13597550 | 8     | 11  | 1990 | 6.50    | Lightning |
| 46.19786535 | -116.22741210 | 8     | 14  | 1990 | 25.00   | Mancaused |
| 46.27647351 | -116.55359700 | 8     | 28  | 1990 | 0.10    | Mancaused |
| 46.26175719 | -116.03701890 | 9     | 1   | 1990 | 2.00    | Mancaused |
| 46.31287474 | -116.42880860 | 9     | 2   | 1990 | 15.00   | Mancaused |
| 46.18870444 | -116.44977600 | 9     | 5   | 1990 | 3.00    | Mancaused |
| 46.17066521 | -116.71550030 | 9     | 7   | 1990 | 0.10    | Lightning |
| 46.32385019 | -116.53308870 | 9     | 17  | 1990 | 1.00    | Mancaused |
| 46.33825903 | -116.16715060 | 9     | 21  | 1990 | 20.00   | Mancaused |
| 46.33471504 | -116.39737750 | 10    | 3   | 1990 | 30.00   | Mancaused |
| 46.27411201 | -116.10837310 | 7     | 30  | 1991 | 4.00    | Lightning |
| 46.45106422 | -116.32991240 | 7     | 31  | 1991 | 6.00    | Lightning |
| 46.35117110 | -116.14351210 | 7     | 31  | 1991 | 80.00   | Lightning |
| 46.06123229 | -116.50670560 | 7     | 31  | 1991 | 0.50    | Lightning |
| 46.34563157 | -116.38703960 | 8     | 4   | 1991 | 4.00    | Lightning |
| 46.01417911 | -116.57431860 | 8     | 5   | 1991 | 2.00    | Lightning |
| 46.20891189 | -116.01332570 | 8     | 15  | 1991 | 0.10    | Mancaused |
| 46.31471100 | -116.46814210 | 8     | 23  | 1991 | 60.00   | Mancaused |
| 46.24999991 | -116.15833290 | 9     | 5   | 1991 | 350.00  | Mancaused |
| 46.31666621 | -116.46666680 | 9     | 20  | 1991 | 10.00   | Mancaused |
| 46.24003355 | -116.01571540 | 9     | 20  | 1991 | 0.10    | Mancaused |
| 46.19952454 | -116.60096250 | 9     | 21  | 1991 | 0.10    | Mancaused |
| 46.28735259 | -116.43939640 | 9     | 25  | 1991 | 0.10    | Mancaused |
| 46.14310697 | -116.48340920 | 9     | 26  | 1991 | 390.00  | Mancaused |
| 46.33853226 | -116.64861220 | 9     | 29  | 1991 | 1.50    | Mancaused |
| 46.21546345 | -116.01166860 | 10    | 7   | 1991 | 0.10    | Mancaused |
| 46.47278664 | -116.36646550 | 10    | 16  | 1991 | 1.00    | Mancaused |
| 46.25049016 | -116.05338880 | 10    | 21  | 1991 | 0.10    | Mancaused |
| 46.19959637 | -116.61136470 | 5     | 15  | 1992 | 0.10    | Mancaused |
| 46.04462604 | -116.65483930 | 6     | 8   | 1992 | 108.00  | Mancaused |
| 46.26920626 | -116.08604170 | 6     | 11  | 1992 | 0.50    | Lightning |
| 46.26670169 | -116.11669880 | 6     | 11  | 1992 | 0.10    | Lightning |
| 46.03245849 | -116.62123110 | 6     | 11  | 1992 | 0.20    | Lightning |
| 46.02632508 | -116.67065140 | 6     | 11  | 1992 | 100.00  | Lightning |
| 46.26450733 | -116.09444820 | 6     | 24  | 1992 | 49.00   | Mancaused |
| 46.38949050 | -116.17550450 | 6     | 25  | 1992 | 0.10    | Lightning |
| 46.37344788 | -116.17742440 | 6     | 25  | 1992 | 1.00    | Mancaused |
| 46.22906852 | -116.06316770 | 6     | 25  | 1992 | 45.00   | Lightning |
| 46.13426651 | -116.60605270 | 6     | 28  | 1992 | 0.10    | Lightning |
| 46.27624570 | -116.62702900 | 7     | 3   | 1992 | 0.10    | Lightning |
| 46.04323900 | -116.51700430 | 7     | 4   | 1992 | 0.20    | Lightning |

**Table 4.1. Wildfire Ignition Profile of Lewis County compiled by the US Forest Service, Clearwater & Nez Perce National Forests.**

| LAT         | LONG          | MONTH | DAY | YEAR | ACREAGE | CAUSE     |
|-------------|---------------|-------|-----|------|---------|-----------|
| 46.46740751 | -116.41533620 | 7     | 6   | 1992 | 0.10    | Mancaused |
| 46.13963572 | -116.63461040 | 7     | 16  | 1992 | 0.10    | Lightning |
| 46.26666617 | -116.09999830 | 7     | 19  | 1992 | 2.00    | Mancaused |
| 46.26261687 | -116.06252560 | 7     | 19  | 1992 | 0.20    | Lightning |
| 46.20338703 | -116.05239470 | 7     | 19  | 1992 | 0.10    | Lightning |
| 46.20342397 | -116.08911590 | 7     | 22  | 1992 | 0.10    | Lightning |
| 46.08049356 | -116.70114390 | 7     | 24  | 1992 | 30.00   | Lightning |
| 46.35986950 | -116.14647700 | 8     | 18  | 1992 | 1.00    | Lightning |
| 46.34914965 | -116.21957750 | 8     | 18  | 1992 | 0.10    | Lightning |
| 46.26545622 | -116.54310010 | 8     | 18  | 1992 | 2.00    | Lightning |
| 46.42571147 | -116.31932300 | 8     | 19  | 1992 | 0.10    | Lightning |
| 46.38546995 | -116.16591470 | 8     | 19  | 1992 | 1.00    | Lightning |
| 46.34559401 | -116.46013840 | 8     | 19  | 1992 | 0.20    | Lightning |
| 46.34559554 | -116.44443970 | 8     | 19  | 1992 | 0.20    | Lightning |
| 46.28747839 | -116.50691390 | 8     | 19  | 1992 | 0.10    | Lightning |
| 46.25455048 | -116.40802290 | 8     | 19  | 1992 | 0.10    | Lightning |
| 46.26261687 | -116.06252560 | 8     | 19  | 1992 | 2.00    | Lightning |
| 46.25997018 | -116.10751360 | 8     | 19  | 1992 | 1654.00 | Lightning |
| 46.24999994 | -116.08329720 | 8     | 19  | 1992 | 40.00   | Lightning |
| 46.24905935 | -116.09176460 | 8     | 19  | 1992 | 7.00    | Lightning |
| 46.19804203 | -116.68707380 | 8     | 19  | 1992 | 1.00    | Lightning |
| 46.20356354 | -116.03687060 | 8     | 19  | 1992 | 0.10    | Lightning |
| 46.39650758 | -116.19020520 | 8     | 22  | 1992 | 0.10    | Mancaused |
| 46.37344788 | -116.17742440 | 3     | 9   | 1993 | 0.20    | Mancaused |
| 46.28375979 | -116.53785050 | 5     | 17  | 1993 | 4.70    | Mancaused |
| 46.36732964 | -116.19864080 | 5     | 20  | 1993 | 1.00    | Mancaused |
| 46.35000008 | -116.19999680 | 6     | 30  | 1993 | 3.00    | Mancaused |
| 46.27807501 | -116.15443530 | 7     | 29  | 1993 | 0.10    | Lightning |
| 46.45831731 | -116.40741510 | 8     | 4   | 1993 | 0.50    | Mancaused |
| 46.40019118 | -116.17792760 | 8     | 14  | 1993 | 0.10    | Lightning |
| 45.99963700 | -116.53811000 | 8     | 14  | 1993 | 0.10    | Lightning |
| 46.23302403 | -116.02539900 | 9     | 17  | 1993 | 0.50    | Mancaused |
| 46.29446849 | -116.60085430 | 10    | 20  | 1993 | 250.00  | Mancaused |
| 46.29113203 | -116.48131190 | 10    | 22  | 1993 | 1.70    | Mancaused |
| 46.20906692 | -116.01303770 | 10    | 92  | 1993 | 0.20    | Mancaused |
| 46.21888927 | -116.03555280 | 4     | 16  | 1994 | 120.00  | Mancaused |
| 46.40564238 | -116.19269530 | 4     | 17  | 1994 | 0.10    | Mancaused |
| 46.46917826 | -116.35607520 | 5     | 8   | 1994 | 8.00    | Mancaused |
| 46.21827275 | -116.01180290 | 5     | 9   | 1994 | 2.00    | Mancaused |
| 46.37344788 | -116.17742440 | 6     | 22  | 1994 | 8.10    | Lightning |
| 46.26171179 | -116.60079130 | 6     | 26  | 1994 | 0.20    | Mancaused |
| 46.21888639 | -116.16833510 | 6     | 30  | 1994 | 40.00   | Mancaused |
| 46.33648669 | -116.60365800 | 7     | 3   | 1994 | 0.30    | Mancaused |

**Table 4.1. Wildfire Ignition Profile of Lewis County compiled by the US Forest Service, Clearwater & Nez Perce National Forests.**

| LAT         | LONG          | MONTH | DAY | YEAR | ACREAGE | CAUSE     |
|-------------|---------------|-------|-----|------|---------|-----------|
| 46.29999745 | -116.48333000 | 7     | 3   | 1994 | 5.00    | Mancaused |
| 46.31666572 | -116.41666440 | 7     | 24  | 1994 | 1000.00 | Mancaused |
| 46.30561947 | -116.55903400 | 7     | 24  | 1994 | 0.10    | Lightning |
| 46.27588490 | -116.71084910 | 7     | 25  | 1994 | 4.00    | Lightning |
| 46.17072921 | -116.37662860 | 7     | 25  | 1994 | 0.10    | Lightning |
| 46.35000008 | -116.19999680 | 7     | 29  | 1994 | 3.00    | Lightning |
| 46.06150857 | -116.56938400 | 7     | 31  | 1994 | 5.00    | Lightning |
| 46.02825922 | -116.61571360 | 7     | 31  | 1994 | 0.10    | Lightning |
| 46.33333151 | -116.19999670 | 8     | 2   | 1994 | 2.00    | Mancaused |
| 46.40016927 | -116.28247580 | 8     | 4   | 1994 | 6.00    | Mancaused |
| 46.39287533 | -116.19906940 | 8     | 11  | 1994 | 0.50    | Lightning |
| 46.21409968 | -116.56966470 | 8     | 11  | 1994 | 0.50    | Lightning |
| 46.31666621 | -116.46666680 | 8     | 12  | 1994 | 50.00   | Mancaused |
| 46.21546345 | -116.01166860 | 8     | 24  | 1994 | 0.10    | Mancaused |
| 46.11590494 | -116.57454520 | 8     | 30  | 1994 | 0.10    | Lightning |
| 46.06746367 | -116.70922190 | 9     | 2   | 1994 | 0.10    | Lightning |
| 46.19238195 | -116.61651750 | 9     | 23  | 1994 | 85.00   | Mancaused |
| 46.29105426 | -116.55366670 | 10    | 4   | 1994 | 33.00   | Mancaused |
| 46.23269292 | -116.04755470 | 10    | 8   | 1994 | 0.50    | Mancaused |
| 46.06155151 | -116.57969240 | 11    | 28  | 1994 | 0.10    | Mancaused |
| 46.38141147 | -116.17845060 | 4     | 30  | 1995 | 0.20    | Mancaused |
| 46.42193577 | -116.24594650 | 5     | 22  | 1995 | 0.10    | Mancaused |
| 46.39278544 | -116.16198480 | 5     | 23  | 1995 | 0.10    | Mancaused |
| 46.25084935 | -116.11519590 | 7     | 6   | 1995 | 0.10    | Lightning |
| 46.24847071 | -116.04269940 | 7     | 6   | 1995 | 0.10    | Mancaused |
| 46.24534640 | -116.04471670 | 7     | 10  | 1995 | 0.10    | Lightning |
| 46.37084153 | -116.15689870 | 7     | 20  | 1995 | 0.20    | Lightning |
| 46.28709663 | -116.72257950 | 7     | 20  | 1995 | 0.10    | Lightning |
| 46.32726829 | -116.12061880 | 7     | 28  | 1995 | 2.00    | Lightning |
| 46.26388916 | -116.10166910 | 8     | 12  | 1995 | 20.00   | Unknown   |
| 46.40019118 | -116.17792760 | 8     | 24  | 1995 | 4.00    | Mancaused |
| 46.23990858 | -116.46032450 | 9     | 2   | 1995 | 4.00    | Mancaused |
| 46.39277797 | -116.25118670 | 9     | 5   | 1995 | 5.00    | Mancaused |
| 46.09517250 | -116.70080540 | 9     | 8   | 1995 | 0.10    | Lightning |
| 46.20891189 | -116.01332570 | 5     | 20  | 1996 | 0.10    | Mancaused |
| 46.22179376 | -116.04760170 | 7     | 2   | 1996 | 0.10    | Mancaused |
| 46.22179376 | -116.04760170 | 7     | 3   | 1996 | 0.10    | Mancaused |
| 46.21441702 | -116.06828710 | 7     | 3   | 1996 | 200.00  | Mancaused |
| 46.22179376 | -116.04760170 | 7     | 4   | 1996 | 0.10    | Mancaused |
| 46.37083357 | -116.17184230 | 7     | 6   | 1996 | 1.00    | Mancaused |
| 46.24727863 | -116.02093420 | 7     | 6   | 1996 | 0.10    | Mancaused |
| 46.32334344 | -116.62690790 | 7     | 9   | 1996 | 0.20    | Mancaused |
| 46.39278544 | -116.16198480 | 7     | 13  | 1996 | 2.00    | Mancaused |

**Table 4.1. Wildfire Ignition Profile of Lewis County compiled by the US Forest Service, Clearwater & Nez Perce National Forests.**

| LAT         | LONG          | MONTH | DAY | YEAR | ACREAGE | CAUSE     |
|-------------|---------------|-------|-----|------|---------|-----------|
| 46.34410707 | -116.15153090 | 7     | 14  | 1996 | 70.00   | Mancaused |
| 46.23269292 | -116.04755470 | 7     | 28  | 1996 | 10.00   | Mancaused |
| 46.22870913 | -116.55370130 | 7     | 30  | 1996 | 0.10    | Lightning |
| 46.33332992 | -116.65000160 | 8     | 8   | 1996 | 5.00    | Mancaused |
| 46.30277826 | -116.69721960 | 8     | 10  | 1996 | 1.00    | Mancaused |
| 46.28676842 | -116.11150860 | 8     | 11  | 1996 | 25.00   | Mancaused |
| 46.26666546 | -116.11666860 | 8     | 16  | 1996 | 5.00    | Mancaused |
| 46.23608699 | -116.55887450 | 8     | 22  | 1996 | 0.10    | Mancaused |
| 46.23637178 | -116.00598000 | 8     | 23  | 1996 | 8.00    | Mancaused |
| 46.28368642 | -116.43419930 | 8     | 26  | 1996 | 1.50    | Mancaused |
| 46.29101579 | -116.29807670 | 8     | 30  | 1996 | 8.00    | Mancaused |
| 46.26029754 | -116.09020990 | 9     | 3   | 1996 | 0.10    | Mancaused |
| 46.18686206 | -116.44196540 | 9     | 3   | 1996 | 2.00    | Mancaused |
| 46.26907997 | -116.12577960 | 9     | 10  | 1996 | 2.00    | Mancaused |
| 46.38001896 | -116.31128440 | 9     | 15  | 1996 | 0.10    | Lightning |
| 46.40389585 | -116.21462620 | 5     | 19  | 1997 | 3.00    | Mancaused |
| 46.21272617 | -116.01153710 | 5     | 20  | 1997 | 1.00    | Mancaused |
| 46.31264213 | -116.18312190 | 5     | 21  | 1997 | 2.00    | Mancaused |
| 46.40389585 | -116.21462620 | 5     | 31  | 1997 | 3.00    | Mancaused |
| 46.33097816 | -116.59580280 | 6     | 18  | 1997 | 1.00    | Mancaused |
| 46.28333076 | -116.50000000 | 6     | 30  | 1997 | 2.00    | Mancaused |
| 46.21065761 | -116.12571870 | 7     | 31  | 1997 | 0.50    | Lightning |
| 46.30277684 | -116.68499770 | 8     | 2   | 1997 | 40.00   | Lightning |
| 46.23997595 | -116.44988500 | 9     | 2   | 1997 | 10.00   | Mancaused |
| 46.30726761 | -116.13453970 | 5     | 19  | 1998 | 0.10    | Mancaused |
| 46.30029905 | -116.11889680 | 5     | 19  | 1998 | 0.10    | Mancaused |
| 46.23639474 | -116.09447950 | 6     | 23  | 1998 | 0.10    | Lightning |
| 46.33823242 | -116.22489980 | 7     | 8   | 1998 | 0.10    | Lightning |
| 46.23608197 | -116.56937090 | 7     | 16  | 1998 | 0.10    | Mancaused |
| 46.39290833 | -116.17644220 | 7     | 30  | 1998 | 0.10    | Lightning |
| 46.47277445 | -116.43386750 | 8     | 5   | 1998 | 0.10    | Mancaused |
| 46.25809626 | -116.54821820 | 8     | 19  | 1998 | 0.10    | Mancaused |
| 46.23976451 | -116.57455690 | 8     | 19  | 1998 | 50.00   | Mancaused |
| 46.22872646 | -116.54326860 | 8     | 19  | 1998 | 5.00    | Lightning |
| 46.11222796 | -116.52755260 | 8     | 19  | 1998 | 1.00    | Lightning |
| 46.12070956 | -116.71058110 | 8     | 20  | 1998 | 0.10    | Lightning |
| 46.32000736 | -116.28232410 | 8     | 21  | 1998 | 0.20    | Lightning |
| 46.25448546 | -116.09959710 | 8     | 21  | 1998 | 16.00   | Lightning |
| 45.99605437 | -116.52268690 | 8     | 21  | 1998 | 1.00    | Lightning |
| 46.38175230 | -116.18017010 | 8     | 23  | 1998 | 0.10    | Mancaused |
| 46.33457329 | -116.18275090 | 8     | 28  | 1998 | 0.50    | Mancaused |
| 46.21797890 | -116.67936120 | 9     | 1   | 1998 | 1.00    | Mancaused |
| 46.31962161 | -116.64236120 | 9     | 7   | 1998 | 0.10    | Lightning |

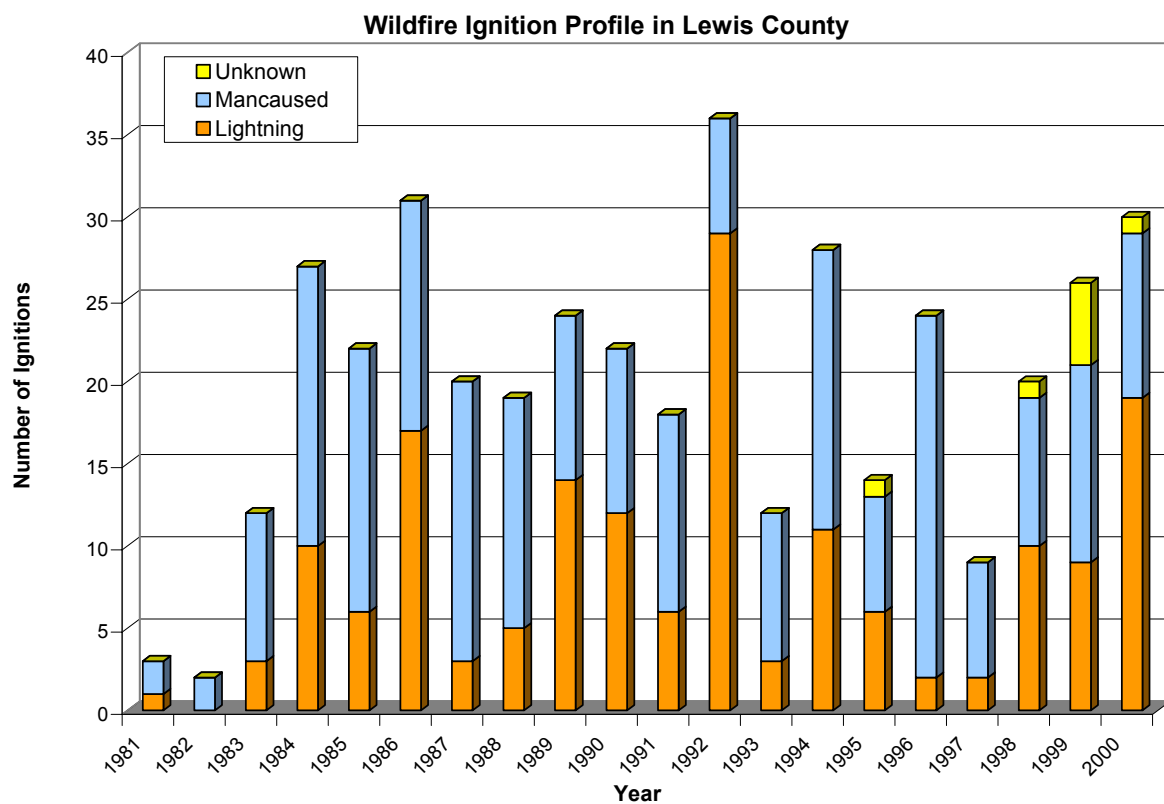
**Table 4.1. Wildfire Ignition Profile of Lewis County compiled by the US Forest Service, Clearwater & Nez Perce National Forests.**

| LAT         | LONG          | MONTH | DAY | YEAR | ACREAGE  | CAUSE     |
|-------------|---------------|-------|-----|------|----------|-----------|
| 46.26666546 | -116.11666860 | 9     | 30  | 1998 | 10000.00 | Unknown   |
| 46.30030063 | -116.58439600 | 5     | 5   | 1999 | 10.00    | Unknown   |
| 46.33529999 | -116.48609930 | 5     | 8   | 1999 | 10.00    | Unknown   |
| 46.33530201 | -116.45249920 | 5     | 10  | 1999 | 25.00    | Unknown   |
| 46.31889973 | -116.23359670 | 5     | 10  | 1999 | 10.00    | Unknown   |
| 46.33530225 | -116.48359650 | 5     | 25  | 1999 | 7.00     | Unknown   |
| 46.27262024 | -116.60601850 | 5     | 25  | 1999 | 5.00     | Mancaused |
| 46.43661278 | -116.33502670 | 6     | 16  | 1999 | 0.10     | Lightning |
| 46.18140911 | -116.44968460 | 6     | 17  | 1999 | 0.10     | Lightning |
| 46.30936141 | -116.51719600 | 6     | 24  | 1999 | 0.10     | Lightning |
| 46.31666621 | -116.46666680 | 7     | 10  | 1999 | 1.00     | Mancaused |
| 46.21074007 | -116.69997960 | 7     | 13  | 1999 | 0.50     | Mancaused |
| 46.23953404 | -116.04279110 | 7     | 17  | 1999 | 7.00     | Mancaused |
| 46.21816785 | -116.04235930 | 7     | 17  | 1999 | 0.10     | Mancaused |
| 45.98821526 | -116.69938770 | 7     | 19  | 1999 | 36.00    | Lightning |
| 46.34535613 | -116.13086520 | 7     | 20  | 1999 | 0.10     | Lightning |
| 46.21433513 | -116.71561850 | 7     | 20  | 1999 | 0.10     | Mancaused |
| 46.40385246 | -116.17267780 | 7     | 21  | 1999 | 1.00     | Lightning |
| 46.28888774 | -116.54972070 | 7     | 22  | 1999 | 1.00     | Mancaused |
| 46.40024928 | -116.21967550 | 8     | 5   | 1999 | 0.10     | Mancaused |
| 46.21063651 | -116.12061050 | 8     | 6   | 1999 | 0.10     | Lightning |
| 46.33471913 | -116.42355180 | 8     | 12  | 1999 | 0.10     | Lightning |
| 46.20709338 | -116.09957520 | 8     | 24  | 1999 | 32.00    | Lightning |
| 46.14722284 | -116.17500310 | 9     | 23  | 1999 | 3.00     | Mancaused |
| 46.22179376 | -116.04760170 | 10    | 2   | 1999 | 0.20     | Mancaused |
| 46.26175719 | -116.03701890 | 10    | 14  | 1999 | 0.10     | Mancaused |
| 46.31297581 | -116.51207060 | 10    | 15  | 1999 | 0.10     | Mancaused |
| 46.18333259 | -116.55000340 | 1     | 1   | 2000 | 5.00     | Mancaused |
| 46.20135934 | -116.58791180 | 3     | 1   | 2000 | 0.00     | Unknown   |
| 46.39303268 | -116.18501580 | 4     | 18  | 2000 | 0.10     | Mancaused |
| 46.30000001 | -116.69999700 | 4     | 24  | 2000 | 5.00     | Mancaused |
| 46.18333259 | -116.55000340 | 7     | 2   | 2000 | 2.00     | Mancaused |
| 46.16666513 | -116.56666540 | 7     | 3   | 2000 | 1.00     | Mancaused |
| 46.25000203 | -116.51666280 | 7     | 8   | 2000 | 2.00     | Mancaused |
| 46.27555661 | -116.55388670 | 7     | 14  | 2000 | 1.00     | Mancaused |
| 46.12671694 | -116.53808510 | 8     | 3   | 2000 | 1.00     | Mancaused |
| 46.18504297 | -116.44453890 | 8     | 4   | 2000 | 3.00     | Mancaused |
| 46.42557190 | -116.21777950 | 8     | 10  | 2000 | 6.70     | Lightning |
| 46.34570880 | -116.49625280 | 8     | 10  | 2000 | 0.25     | Lightning |
| 46.33466921 | -116.48093490 | 8     | 10  | 2000 | 1.00     | Lightning |
| 46.32735255 | -116.46538060 | 8     | 10  | 2000 | 3.00     | Lightning |
| 46.32015727 | -116.45496010 | 8     | 10  | 2000 | 0.10     | Lightning |
| 46.31670141 | -116.50669830 | 8     | 10  | 2000 | 100.00   | Lightning |

**Table 4.1. Wildfire Ignition Profile of Lewis County compiled by the US Forest Service, Clearwater & Nez Perce National Forests.**

| LAT         | LONG          | MONTH | DAY | YEAR | ACREAGE  | CAUSE     |
|-------------|---------------|-------|-----|------|----------|-----------|
| 46.31654180 | -116.49689580 | 8     | 10  | 2000 | 100.00   | Lightning |
| 46.31652267 | -116.48648720 | 8     | 10  | 2000 | 0.25     | Lightning |
| 46.22137727 | -116.59578680 | 8     | 10  | 2000 | 1.00     | Lightning |
| 46.25090038 | -116.08390900 | 8     | 10  | 2000 | 0.10     | Lightning |
| 46.22907360 | -116.10487640 | 8     | 10  | 2000 | 3.00     | Lightning |
| 46.18887787 | -116.36095700 | 8     | 10  | 2000 | 5.00     | Lightning |
| 46.16338143 | -116.32446730 | 8     | 10  | 2000 | 10.00    | Lightning |
| 46.08364098 | -116.68021290 | 8     | 10  | 2000 | 0.20     | Lightning |
| 46.06157525 | -116.62799110 | 8     | 10  | 2000 | 74500.00 | Lightning |
| 46.23240712 | -116.72086480 | 8     | 24  | 2000 | 4.00     | Lightning |
| 46.18168391 | -116.66332500 | 8     | 24  | 2000 | 0.10     | Lightning |
| 46.16696257 | -116.58003800 | 8     | 24  | 2000 | 0.25     | Lightning |
| 46.30932751 | -116.50191980 | 9     | 7   | 2000 | 50.00    | Lightning |
| 46.09059946 | -116.63837420 | 20    | 0   | 2000 | 7333.00  | Mancaused |

**Figure 4.1. Wildfire Ignition Profile from US Forest Service data in Lewis County.**



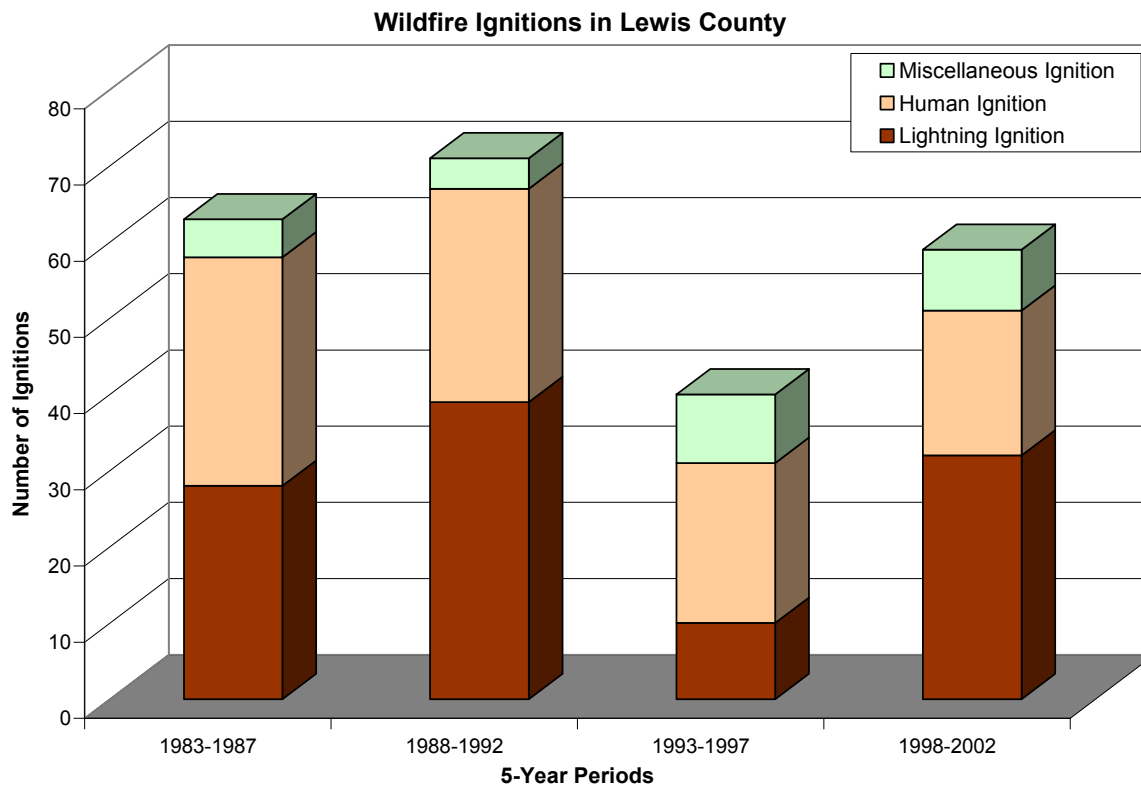
The Idaho Department of Lands maintains a database of wildfire ignitions in Idaho for those areas where the Idaho Department of Lands provides primary wildfire suppression services. Their database includes ignitions from 1983 through 2002 (Table 4.2). An analysis of the ignitions in Lewis County reveals that approximately 233 wildfires have been ignited during this period in Lewis County (4.2).

**Table 4.2. Summary of wildfire ignitions in Lewis County from the Idaho Department of Lands database.**

| <b>General Cause</b> | <b>Number of Ignitions</b> | <b>Percent of Total Ignitions</b> |
|----------------------|----------------------------|-----------------------------------|
| Lightning            | 109                        | 46.8%                             |
| Campfire             | 10                         | 4.3%                              |
| Smoking              | 3                          | 1.3%                              |
| Debris Burning       | 45                         | 19.3%                             |
| Arson                | 8                          | 3.4%                              |
| Equipment Use        | 30                         | 12.9%                             |
| Railroad             | 0                          | 0.0%                              |
| Children             | 2                          | 0.9%                              |
| Miscellaneous        | 26                         | 11.2%                             |
| <b>Total</b>         | <b>233</b>                 |                                   |

Many fires have burned in the region of Lewis County (Tables 4.1 & 4.2). Figures 4.1 & 4.2 summarize fire ignitions and acres burned by 5-year periods (1983-2002). There were approximately 233 fire ignitions during this 20 year period, with the highest number of total ignitions occurring over the decade 1988-1992 (Figure 4.2). Lightning caused ignitions account for approximately 47% of all ignitions during this period (Table 4.2), with debris burning and equipment use both accounting for the largest number of human caused ignitions.

**Figure 4.2. Lewis County Wildfire Ignition Profile in 5-Year Periods from the Idaho Department of Lands dataset.**



It should be noted, that many but not all of the fires reported in the two datasets provided by the US Forest Service (Table 4.1) and the Idaho Department of Lands (Table 4.3) are the same. The Idaho Department of Lands dataset is a tabular dataset which does not include specific geographic data on the exact location of the ignitions, but it does include the fire's name. The US Forest Service dataset does include an ignition point with specific coordinates, but it does not include the fire names which the Idaho Department of Lands dataset does. Because of this, it is impossible to reconcile these two datasets. Instead, we have presented both in their entirety to enable the reader and analyst to derive the trends in ignitions and extent, which both datasets provide.

**Table 4.3. Wildfire Extent Profile for Lewis County from the Idaho Department of Lands database 1983-2002.**

| Fire Name           | District Name      | Year | Out Size | Land Owner                | General Cause  | Specific Cause                       | Ignition Month | Total Cost |
|---------------------|--------------------|------|----------|---------------------------|----------------|--------------------------------------|----------------|------------|
| DEAD END FIRE       | Maggie Creek FPD   | 1983 | 0.1      | Potlach Corporation       | Lightning      | Lightning                            | 09             | \$153.30   |
| GRASS KNOB          | Maggie Creek FPD   | 1983 | 30       | Private Property          | Debris Burning | Yard Grass, Weeds, Ditch             | 09             | \$83.30    |
| TWO CAN FIRE        | Craig Mountain FPD | 1983 | 0.1      | Nez Perce Tribe           | Campfire       | Campfire, No Further Breakdown       | 07             | \$44.43    |
| ISLAND FIRE         | Craig Mountain FPD | 1983 | 0.1      | Private Property          | Lightning      | Lightning                            | 08             | \$86.60    |
| STUBBLE FIRE        | Craig Mountain FPD | 1983 | 70       | Nez Perce Tribe           | Debris Burning | Slash Burning, Prescribed            | 09             | \$730.89   |
| LONE MAN FIRE       | Craig Mountain FPD | 1983 | 43       | Nez Perce Tribe           | Debris Burning | Field Burning, Prescribed            | 09             | \$44.83    |
| MELTED BOTTLE       | Maggie Creek FPD   | 1984 | 18       | Private Property          | Miscellaneous  | Miscellaneous, No Further Breakdown  | 07             | \$253.80   |
| BIRTHDAY FIRE       | Maggie Creek FPD   | 1984 | 0.1      | Private Property          | Lightning      | Lightning                            | 08             | \$140.51   |
| DANNY BOY           | Maggie Creek FPD   | 1984 | 0.1      | Nez Perce Tribe           | Lightning      | Lightning                            | 08             | \$537.84   |
| POWER LINE ROAD     | Maggie Creek FPD   | 1984 | 0.1      | Private Property          | Lightning      | Lightning                            | 08             | \$174.55   |
| SHORT FIR           | Maggie Creek FPD   | 1984 | 0.1      | Bureau Of Land Management | Lightning      | Lightning                            | 08             | \$453.99   |
| ALPINE              | Maggie Creek FPD   | 1984 | 0.1      | Nez Perce Tribe           | Lightning      | Lightning                            | 08             | \$1,239.17 |
| BURNT SACK          | Maggie Creek FPD   | 1984 | 1        | Private Property          | Debris Burning | Debris Burning, No Further Breakdown | 10             | \$108.75   |
| COLD SPRINGS        | Craig Mountain FPD | 1984 | 0.1      | State Of Idaho            | Debris Burning | Miscellaneous, No Further Breakdown  | 07             | \$27.42    |
| HOOVER RIDGE        | Craig Mountain FPD | 1984 | 0.1      | Private Property          | Lightning      | Lightning                            | 07             | \$1,234.81 |
| LOWER MALONEY CREEK | Craig Mountain FPD | 1984 | 0.1      | Private Property          | Lightning      | Lightning                            | 07             | \$610.32   |
| MUD SPRINGS         | Craig Mountain FPD | 1984 | 0.1      | Nez Perce Tribe           | Lightning      | Lightning                            | 08             | \$162.36   |
| HOLDOVER FIRE       | Craig Mountain FPD | 1984 | 0.5      | Nez Perce Tribe           | Lightning      | Lightning                            | 08             | \$350.97   |
| RED FLAG #1         | Craig Mountain FPD | 1984 | 6        | Private Property          | Arson          | Arson, No Further Breakdown          | 08             | \$70.02    |
| RED FLAG #2         | Craig Mountain FPD | 1984 | 0.1      | Private Property          | Arson          | Arson, No Further Breakdown          | 08             | \$23.52    |
| RED FLAG #3         | Craig Mountain FPD | 1984 | 0.1      | Private Property          | Arson          | Arson, No Further Breakdown          | 08             | \$297.90   |

**Table 4.3. Wildfire Extent Profile for Lewis County from the Idaho Department of Lands database 1983-2002.**

| Fire Name          | District Name      | Year | Out Size | Land Owner                         | General Cause  | Specific Cause                       | Ignition Month | Total Cost  |
|--------------------|--------------------|------|----------|------------------------------------|----------------|--------------------------------------|----------------|-------------|
| LAPWAI CANYON      | Craig Mountain FPD | 1984 | 3        | Private Property                   | Equipment Use  | Equipment Use, No Further Breakdown  | 08             | \$34.27     |
| NO LINE FIRE       | Craig Mountain FPD | 1984 | 10       | Private Property                   | Debris Burning | Slash Burning, Prescribed            | 08             | \$28.64     |
| LOGGING TRUCK FIRE | Craig Mountain FPD | 1984 | 0.1      | County Lands                       | Equipment Use  | Equipment Use, No Further Breakdown  | 09             | \$56.48     |
| BIG FIR            | Maggie Creek FPD   | 1985 | 0.1      | Bureau Of Land Management          | Lightning      | Lightning                            | 05             | \$311.70    |
| MILE POST 63       | Maggie Creek FPD   | 1985 | 12       | Private Property                   | Equipment Use  | Campfire, No Further Breakdown       | 07             | \$9,470.65  |
| FIREWORKS #1       | Maggie Creek FPD   | 1985 | 0.1      | Private Property                   | Miscellaneous  | Fireworks                            | 07             | \$51.45     |
| SIX MILE           | Maggie Creek FPD   | 1985 | 2        | Private Property                   | Lightning      | Lightning                            | 07             | \$2,851.16  |
| GREER              | Maggie Creek FPD   | 1985 | 0.1      | State Of Idaho                     | Equipment Use  | Exhaust System, Catalytic Converters | 08             | \$345.29    |
| WILD OAT #1        | Maggie Creek FPD   | 1985 | 17       | Nez Perce Tribe                    | Equipment Use  | Exhaust System, Catalytic Converters | 08             | \$175.53    |
| WILD OATS #2       | Maggie Creek FPD   | 1985 | 0.1      | Nez Perce Tribe                    | Equipment Use  | Exhaust System, Catalytic Converters | 08             | \$84.50     |
| LAWYERS BRIDGE     | Craig Mountain FPD | 1985 | 0.3      | Idaho Department of Transportation | Arson          | Fireworks                            | 06             | \$52.16     |
| CAMPER FIRE        | Craig Mountain FPD | 1985 | 0.1      | Idaho Parks & Recreation           | Campfire       | Campfire, No Further Breakdown       | 07             | \$688.34    |
| HAMILTON CANYON    | Craig Mountain FPD | 1985 | 50       | Nez Perce Tribe                    | Lightning      | Lightning                            | 08             | \$13,670.62 |
| CADILLAC           | Maggie Creek FPD   | 1986 | 7        | Idaho Department of Transportation | Equipment Use  | Equipment Use, No Further Breakdown  | 06             | \$5,602.36  |
| SIX MILE           | Maggie Creek FPD   | 1986 | 0.1      | Private Property                   | Miscellaneous  | Miscellaneous, No Further Breakdown  | 07             | \$98.72     |
| GILBERT GRADE      | Maggie Creek FPD   | 1986 | 0.1      | Private Property                   | Lightning      | Lightning                            | 08             | \$391.50    |
| TRAMWAY            | Maggie Creek FPD   | 1986 | 4        | Nez Perce Tribe                    | Lightning      | Lightning                            | 08             | \$6,451.46  |
| ALPINE             | Maggie Creek FPD   | 1986 | 2        | Nez Perce Tribe                    | Lightning      | Lightning                            | 08             | \$2,027.32  |
| SOUTH FIVE MILE    | Maggie Creek FPD   | 1986 | 8        | Private Property                   | Equipment Use  | Equipment Use, No Further Breakdown  | 08             | \$90.24     |
| NEAR POSTHOLE      | Craig Mountain FPD | 1986 | 5        | Nez Perce Tribe                    | Lightning      | Lightning                            | 06             | \$140.06    |
| SHINGLES           | Craig Mountain FPD | 1986 | 2        | Nez Perce Tribe                    | Miscellaneous  | Miscellaneous, No                    | 07             | \$857.36    |

**Table 4.3. Wildfire Extent Profile for Lewis County from the Idaho Department of Lands database 1983-2002.**

| Fire Name         | District Name      | Year | Out Size | Land Owner                  | General Cause  | Specific Cause                       | Ignition Month | Total Cost |
|-------------------|--------------------|------|----------|-----------------------------|----------------|--------------------------------------|----------------|------------|
|                   |                    |      |          |                             |                | Further Breakdown                    |                |            |
| BIG CANYON        | Craig Mountain FPD | 1986 | 15       | Private Property            | Lightning      | Lightning                            | 08             | \$928.46   |
| MISSION CREEK     | Craig Mountain FPD | 1986 | 1        | Private Property            | Lightning      | Lightning                            | 08             | \$1,420.76 |
| FOX BUTTE #1      | Craig Mountain FPD | 1986 | 0.1      | Potlach Corporation         | Lightning      | Lightning                            | 08             | \$512.73   |
| FOX BUTTE #2      | Craig Mountain FPD | 1986 | 0.1      | Potlach Corporation         | Lightning      | Lightning                            | 08             | \$370.05   |
| DEEP CREEK        | Craig Mountain FPD | 1986 | 0.1      | Private Property            | Lightning      | Lightning                            | 08             | \$2,468.98 |
| DEEP CREEK #2     | Craig Mountain FPD | 1986 | 0.1      | Private Property            | Lightning      | Lightning                            | 08             | \$186.70   |
| FOX BUTTE #3      | Craig Mountain FPD | 1986 | 0.1      | Private Property            | Lightning      | Lightning                            | 08             | \$262.39   |
| GOLD MINE         | Craig Mountain FPD | 1986 | 0.1      | Private Property            | Lightning      | Lightning                            | 08             | \$142.72   |
| SHOP              | Maggie Creek FPD   | 1987 | 0.1      | State Of Idaho              | Debris Burning | Miscellaneous, No Further Breakdown  | 08             | \$15.78    |
| CUTOVER           | Maggie Creek FPD   | 1987 | 0.1      | Private Property            | Lightning      | Lightning                            | 08             | \$907.23   |
| LITTLE CANYON     | Maggie Creek FPD   | 1987 | 0.1      | Smaller Forest Industry Co. | Lightning      | Lightning                            | 08             | \$586.20   |
| CENTRAL RIDGE     | Maggie Creek FPD   | 1987 | 0.1      | Private Property            | Debris Burning | Slash Burning, Prescribed            | 08             | \$86.01    |
| LAWYER            | Maggie Creek FPD   | 1987 | 0.1      | Private Property            | Equipment Use  | Equipment Use, No Further Breakdown  | 10             | \$43.85    |
| STEEP BANK        | Maggie Creek FPD   | 1987 | 0.1      | State Of Idaho              | Miscellaneous  | Miscellaneous, No Further Breakdown  | 10             | \$24.33    |
| OLD MILL          | Craig Mountain FPD | 1987 | 0.1      | Idaho Fish & Game           | Smoking        | Cigarette                            | 06             | \$205.23   |
| BIG BARN          | Craig Mountain FPD | 1987 | 0.1      | Private Property            | Debris Burning | Debris Burning, No Further Breakdown | 09             | \$120.15   |
| OLD RAILROAD      | Craig Mountain FPD | 1987 | 5        | Private Property            | Debris Burning | Debris Burning, No Further Breakdown | 09             | \$58.41    |
| POSTHOLE CANYON   | Craig Mountain FPD | 1987 | 0.1      | Private Property            | Debris Burning | Debris Burning, No Further Breakdown | 09             | \$260.65   |
| TALMAKS           | Craig Mountain FPD | 1987 | 0.1      | Nez Perce Tribe             | Debris Burning | Slash Burning, Prescribed            | 09             | \$694.23   |
| COLDSPRINGS CREEK | Craig Mountain FPD | 1987 | 3        | Nez Perce Tribe             | Debris Burning | Field Burning, Prescribed            | 10             | \$74.71    |
| WINCHESTER STUMP  | Craig Mountain FPD | 1987 | 0.1      | Private Property            | Debris Burning | Debris Burning, No Further Breakdown | 10             | \$112.79   |
| LITTLE BIRD       | Maggie Creek FPD   | 1988 | 0.1      | Private Property            | Lightning      | Lightning                            | 06             | \$295.35   |
| HOLDOVER          | Maggie Creek FPD   | 1988 | 2        | Private Property            | Lightning      | Lightning                            | 06             | \$788.74   |

**Table 4.3. Wildfire Extent Profile for Lewis County from the Idaho Department of Lands database 1983-2002.**

| Fire Name        | District Name      | Year | Out Size | Land Owner       | General Cause  | Specific Cause                          | Ignition Month | Total Cost |
|------------------|--------------------|------|----------|------------------|----------------|---|----------------|------------|
| BRAKE SHOE       | Maggie Creek FPD   | 1988 | 1        | State Of Idaho   | Equipment Use  | Equipment Use, No Further Breakdown     | 08             | \$25.93    |
| SIX MILE         | Maggie Creek FPD   | 1988 | 0.1      | State Of Idaho   | Equipment Use  | Vehicle, Brakes                         | 09             | \$138.40   |
| FIVE MILE        | Maggie Creek FPD   | 1988 | 160      | Nez Perce Tribe  | Equipment Use  | Exhaust System, Catalytic Converters    | 09             | \$2,245.09 |
| JUMP             | Maggie Creek FPD   | 1988 | 1        | Private Property | Debris Burning | Field Burning, Prescribed               | 10             | \$415.49   |
| SOUTH TALMAKS    | Craig Mountain FPD | 1988 | 95       | Nez Perce Tribe  | Lightning      | Lightning                               | 04             | \$1,568.78 |
| MALONEY DIVIDE   | Craig Mountain FPD | 1988 | 0.1      | Private Property | Debris Burning | Slash Burning, Prescribed               | 01             | \$445.30   |
| POSTHOLE SLASH   | Craig Mountain FPD | 1988 | 0.1      | Nez Perce Tribe  | Debris Burning | Slash Burning, Prescribed               | 11             | \$231.99   |
| LAWYER'S         | Craig Mountain FPD | 1988 | 0.1      | Private Property | Equipment Use  | Equipment Use, No Further Breakdown     | 08             | \$145.84   |
| BIG CANYON       | Craig Mountain FPD | 1988 | 12       | Private Property | Lightning      | Lightning                               | 08             | \$5,681.50 |
| MISSION CORRAL   | Craig Mountain FPD | 1988 | 0.1      | Private Property | Lightning      | Lightning                               | 08             | \$136.64   |
| CRISPY BUCK      | Craig Mountain FPD | 1988 | 0.1      | Private Property | Miscellaneous  | Powerline, Insulator, Transformers, Arc | 09             | \$384.14   |
| JUNCTION TRACKS  | Craig Mountain FPD | 1988 | 0.5      | Nez Perce Tribe  | Debris Burning | Debris Burning, No Further Breakdown    | 10             | \$123.78   |
| STUBBLE          | Maggie Creek FPD   | 1989 | 5        | Private Property | Equipment Use  | Equipment Use, No Further Breakdown     | 08             | \$59.65    |
| TRAMWAY          | Maggie Creek FPD   | 1989 | 0.1      | Nez Perce Tribe  | Lightning      | Lightning                               | 08             | \$1,734.93 |
| BEAR CREEK       | Maggie Creek FPD   | 1989 | 3        | Private Property | Lightning      | Lightning                               | 08             | \$1,948.74 |
| SAW DUST PILE    | Craig Mountain FPD | 1989 | 0.5      | State Of Idaho   | Children       | Fireworks                               | 07             | \$284.76   |
| MALONEY CREEK    | Craig Mountain FPD | 1989 | 0.8      | Private Property | Lightning      | Lightning                               | 07             | \$1,099.17 |
| WILLOW CREEK     | Craig Mountain FPD | 1989 | 1        | Private Property | Debris Burning | Debris Burning, No Further Breakdown    | 08             | \$213.70   |
| WHIRLWIND        | Craig Mountain FPD | 1989 | 8        | Private Property | Debris Burning | Field Burning, Prescribed               | 09             | \$121.03   |
| AIRPORT ROAD     | Craig Mountain FPD | 1989 | 3.2      | Private Property | Debris Burning | Debris Burning, No Further Breakdown    | 09             | \$228.68   |
| MUD SPRINGS ROAD | Craig Mountain FPD | 1989 | 1        | Nez Perce Tribe  | Debris Burning | Slash Burning, Prescribed               | 09             | \$264.60   |
| NUCRAIG          | Craig Mountain FPD | 1989 | 3        | Private Property | Debris Burning | Debris Burning, No                      | 11             | \$104.34   |

**Table 4.3. Wildfire Extent Profile for Lewis County from the Idaho Department of Lands database 1983-2002.**

| Fire Name         | District Name      | Year | Out Size | Land Owner                | General Cause  | Specific Cause                       | Ignition Month | Total Cost  |
|-------------------|--------------------|------|----------|---------------------------|----------------|--------------------------------------|----------------|-------------|
| Further Breakdown |                    |      |          |                           |                |                                      |                |             |
| YELLOW SHIRT      | Maggie Creek FPD   | 1990 | 0.2      | Nez Perce Tribe           | Lightning      | Lightning                            | 08             | \$505.02    |
| SWITCHBACK        | Maggie Creek FPD   | 1990 | 0.2      | Private Property          | Lightning      | Lightning                            | 08             | \$317.34    |
| FIVE MILE RIDGE   | Maggie Creek FPD   | 1990 | 0.2      | Private Property          | Lightning      | Lightning                            | 08             | \$395.38    |
| SOUTH GREER       | Maggie Creek FPD   | 1990 | 0.1      | State Of Idaho            | Lightning      | Lightning                            | 08             | \$411.76    |
| BABY TREE         | Maggie Creek FPD   | 1990 | 0.1      | Nez Perce Tribe           | Lightning      | Lightning                            | 08             | \$132.29    |
| UPPER SIX MILE    | Maggie Creek FPD   | 1990 | 7        | Private Property          | Lightning      | Lightning                            | 08             | \$4,298.12  |
| FIVE MILE         | Maggie Creek FPD   | 1990 | 5        | Private Property          | Lightning      | Lightning                            | 08             | \$1,900.25  |
| LONE SNAG         | Maggie Creek FPD   | 1990 | 0.1      | Private Property          | Lightning      | Lightning                            | 08             | \$1,104.25  |
| SUSIE CREEK       | Maggie Creek FPD   | 1990 | 6.5      | Bureau Of Land Management | Lightning      | Lightning                            | 08             | \$8,875.24  |
| SLASH PILE        | Maggie Creek FPD   | 1990 | 0.1      | Private Property          | Debris Burning | Slash Burning, Prescribed            | 03             | \$308.89    |
| HAMILTON CREEK    | Maggie Creek FPD   | 1990 | 20       | Private Property          | Equipment Use  | Slash Burning, Prescribed            | 09             | \$14,636.61 |
| NEZPERCE          | Maggie Creek FPD   | 1990 | 25       | Private Property          | Equipment Use  | Burning Vehicle                      | 08             | \$46.04     |
| RIDGE ROAD        | Craig Mountain FPD | 1990 | 0.2      | Nez Perce Tribe           | Lightning      | Lightning                            | 07             | \$532.20    |
| CRAIG JUNCTION    | Craig Mountain FPD | 1990 | 0.1      | Private Property          | Equipment Use  | Exhaust System, Catalytic Converters | 08             | \$78.70     |
| FLETCHER          | Craig Mountain FPD | 1990 | 15       | Private Property          | Equipment Use  | Equipment Use, No Further Breakdown  | 09             | \$115.05    |
| LONE FIR          | Craig Mountain FPD | 1990 | 0.1      | Private Property          | Lightning      | Lightning                            | 09             | \$282.39    |
| COLD SPRINGS      | Craig Mountain FPD | 1990 | 1        | Private Property          | Debris Burning | Debris Burning, No Further Breakdown | 09             | \$202.25    |
| FIVE MILE         | Maggie Creek FPD   | 1991 | 4        | Private Property          | Lightning      | Lightning                            | 07             | \$8,294.94  |
| BIG CANYON        | Maggie Creek FPD   | 1991 | 4        | Private Property          | Lightning      | Lightning                            | 08             | \$4,711.69  |
| ANSWER ME         | Maggie Creek FPD   | 1991 | 0.1      | Private Property          | Debris Burning | Debris Burning, No Further Breakdown | 10             | \$17.21     |
| BLACKPINE         | Craig Mountain FPD | 1991 | 0.1      | Private Property          | Lightning      | Lightning                            | 07             | \$563.70    |
| DEER CREEK        | Craig Mountain FPD | 1991 | 0.9      | Private Property          | Lightning      | Lightning                            | 07             | \$1,083.55  |
| BIG CANYON        | Craig Mountain FPD | 1991 | 60       | Private Property          | Equipment Use  | Equipment Use, No Further Breakdown  | 08             | \$403.74    |
| WOODSIDE          | Craig Mountain FPD | 1991 | 0.1      | Private Property          | Campfire       | Campfire, No Further Breakdown       | 09             | \$137.35    |
| LAWYERS CANYON    | Craig Mountain FPD | 1991 | 390      | Private Property          | Miscellaneous  | Warming Fire, Hunter Or Fishing      | 09             | \$13,867.78 |

**Table 4.3. Wildfire Extent Profile for Lewis County from the Idaho Department of Lands database 1983-2002.**

| Fire Name           | District Name      | Year | Out Size | Land Owner                         | General Cause  | Specific Cause                          | Ignition Month | Total Cost   |
|---------------------|--------------------|------|----------|------------------------------------|----------------|---|----------------|--------------|
| POST HOLE           | Craig Mountain FPD | 1991 | 0.1      | Private Property                   | Debris Burning | Field Burning, Prescribed               | 09             | \$192.20     |
| WINCHESTER GRADE    | Craig Mountain FPD | 1991 | 1.5      | Private Property                   | Miscellaneous  | Road Right Of Way Burning               | 09             | \$476.77     |
| HIGHWAY 12          | Maggie Creek FPD   | 1992 | 49       | Private Property                   | Equipment Use  | Burning Vehicle                         | 06             | \$22,665.96  |
| VIEW POINT          | Maggie Creek FPD   | 1992 | 45       | Private Property                   | Lightning      | Lightning                               | 06             | \$1,517.35   |
| 2 AXE FIRE          | Maggie Creek FPD   | 1992 | 0.1      | Private Property                   | Lightning      | Lightning                               | 06             | \$84.69      |
| OLD GREER GRADE     | Maggie Creek FPD   | 1992 | 0.1      | Private Property                   | Lightning      | Lightning                               | 08             | \$409.45     |
| CENTRAL RIDGE       | Maggie Creek FPD   | 1992 | 0.1      | Private Property                   | Lightning      | Lightning                               | 08             | \$860.31     |
| MARKER 62           | Maggie Creek FPD   | 1992 | 1654     | Nez Perce Tribe                    | Lightning      | Lightning                               | 08             | \$585,771.13 |
| MCCLEOD             | Maggie Creek FPD   | 1992 | 7        | Nez Perce Tribe                    | Lightning      | Lightning                               | 08             | \$13,809.39  |
| GREER               | Maggie Creek FPD   | 1992 | 0.1      | Private Property                   | Miscellaneous  | Powerline, Insulator, Transformers, Arc | 08             | \$210.01     |
| WESTSIDE            | Craig Mountain FPD | 1992 | 0.1      | Private Property                   | Debris Burning | Debris Burning, No Further Breakdown    | 05             | \$297.07     |
| MALONEY             | Craig Mountain FPD | 1992 | 108      | Private Property                   | Equipment Use  | Equipment Use, No Further Breakdown     | 06             | \$7,272.68   |
| HOOVER POINT        | Craig Mountain FPD | 1992 | 100      | Private Property                   | Lightning      | Lightning                               | 06             | \$29,516.89  |
| WESTLAKE            | Craig Mountain FPD | 1992 | 0.1      | Private Property                   | Lightning      | Lightning                               | 06             | \$760.74     |
| WOODSIDE            | Craig Mountain FPD | 1992 | 0.1      | Private Property                   | Lightning      | Lightning                               | 07             | \$568.04     |
| WAPSHILLA 1         | Craig Mountain FPD | 1992 | 1        | Idaho Fish & Game                  | Lightning      | Lightning                               | 08             | \$823.00     |
| COLD SPRINGS        | Craig Mountain FPD | 1992 | 0.1      | Nez Perce Tribe                    | Lightning      | Lightning                               | 08             | \$517.69     |
| POST HOLE TOP       | Craig Mountain FPD | 1992 | 0.2      | Private Property                   | Lightning      | Lightning                               | 08             | \$673.60     |
| POST HOLE BOTTOM    | Craig Mountain FPD | 1992 | 0.2      | Private Property                   | Lightning      | Lightning                               | 08             | \$138.27     |
| BOVEY'S FEED LOT #1 | Craig Mountain FPD | 1992 | 0.1      | Private Property                   | Lightning      | Lightning                               | 08             | \$107.93     |
| MCCORMICK RIDGE     | Craig Mountain FPD | 1992 | 1        | Private Property                   | Lightning      | Lightning                               | 08             | \$1,073.97   |
| BOVEY'S FEED LOT #2 | Craig Mountain FPD | 1992 | 2        | Private Property                   | Lightning      | Lightning                               | 08             | \$91.70      |
| BOAT RAMP           | Maggie Creek FPD   | 1993 | 0.2      | Idaho Department of Transportation | Campfire       | Campfire, No Further Breakdown          | 03             | \$27.88      |
| SPRING              | Maggie Creek FPD   | 1993 | 1        | Private Property                   | Debris Burning | Slash Burning, Prescribed               | 05             | \$225.74     |

**Table 4.3. Wildfire Extent Profile for Lewis County from the Idaho Department of Lands database 1983-2002.**

| Fire Name        | District Name      | Year | Out Size | Land Owner       | General Cause  | Specific Cause                       | Ignition Month | Total Cost |
|------------------|--------------------|------|----------|------------------|----------------|--------------------------------------|----------------|------------|
| EFFIE CREEK      | Maggie Creek FPD   | 1993 | 0.1      | Private Property | Lightning      | Lightning                            | 07             | \$295.48   |
| CRAIG JUNCTION   | Craig Mountain FPD | 1993 | 4.7      | Nez Perce Tribe  | Debris Burning | Field Burning, Prescribed            | 05             | \$301.37   |
| PECK             | Craig Mountain FPD | 1993 | 0.5      | Private Property | Debris Burning | Slash Burning, Prescribed            | 08             | \$448.19   |
| CULDESAC         | Craig Mountain FPD | 1993 | 200      | Private Property | Debris Burning | Debris Burning, No Further Breakdown | 10             | \$279.06   |
| BIG CANYON TRIB. | Craig Mountain FPD | 1993 | 1.7      | Nez Perce Tribe  | Debris Burning | Slash Burning, Prescribed            | 10             | \$137.68   |
| LAPWAI CANYON    | Craig Mountain FPD | 1993 | 250      | Private Property | Debris Burning | Debris Burning, No Further Breakdown | 10             | \$7,134.28 |
| LUKES GULCH      | Maggie Creek FPD   | 1994 | 0.1      | Private Property | Lightning      | Lightning                            | 07             | \$353.51   |
| COUNTY LINE      | Maggie Creek FPD   | 1994 | 6        | Private Property | Equipment Use  | Equipment Use, No Further Breakdown  | 08             | \$8,615.37 |
| STAR CEDAR       | Maggie Creek FPD   | 1994 | 0.1      | Nez Perce Tribe  | Equipment Use  | Equipment Use, No Further Breakdown  | 08             | \$115.98   |
| JEEP             | Maggie Creek FPD   | 1994 | 0.5      | Private Property | Lightning      | Lightning                            | 08             | \$5,019.72 |
| DRAKE ROAD       | Maggie Creek FPD   | 1994 | 0.5      | Private Property | Miscellaneous  | Miscellaneous, No Further Breakdown  | 10             | \$337.00   |
| WINCHESTER FLATS | Craig Mountain FPD | 1994 | 0.2      | Nez Perce Tribe  | Children       | Fireworks                            | 06             | \$446.15   |
| REUBENS          | Craig Mountain FPD | 1994 | 0.1      | Private Property | Lightning      | Lightning                            | 07             | \$528.44   |
| CRAIG JUNCTION   | Craig Mountain FPD | 1994 | 33       | Nez Perce Tribe  | Debris Burning | Field Burning, Prescribed            | 10             | \$1,765.15 |
| MALONEY CREEK    | Craig Mountain FPD | 1994 | 5        | Private Property | Lightning      | Lightning                            | 07             | \$8,273.80 |
| TRAUTMAN         | Craig Mountain FPD | 1994 | 0.5      | Private Property | Lightning      | Lightning                            | 08             | \$1,034.30 |
| WILLOW CREEK     | Craig Mountain FPD | 1994 | 0.1      | Nez Perce Tribe  | Lightning      | Lightning                            | 08             | \$854.41   |
| MUD SPRINGS      | Craig Mountain FPD | 1994 | 85       | Private Property | Debris Burning | Field Burning, Prescribed            | 09             | \$114.96   |
| OLD GRADE        | Maggie Creek FPD   | 1995 | 0.1      | Nez Perce Tribe  | Lightning      | Lightning                            | 07             | \$119.14   |
| BECKER ROAD      | Maggie Creek FPD   | 1995 | 5        | Private Property | Miscellaneous  | Field Burning, Prescribed            | 09             | \$2,458.70 |
| CLEARWATER RIDGE | Craig Mountain FPD | 1995 | 2        | Private Property | Miscellaneous  | Fireworks                            | 05             | \$829.85   |
| CITY LIMITS      | Craig Mountain FPD | 1995 | 4        | Private Property | Equipment Use  | Exhaust, Off Road ATV, Motorcycles   | 09             | \$74.60    |
| LOOKOUT          | Maggie Creek FPD   | 1996 | 0.1      | Private Property | Miscellaneous  | Fireworks                            | 07             | \$272.25   |

**Table 4.3. Wildfire Extent Profile for Lewis County from the Idaho Department of Lands database 1983-2002.**

| Fire Name      | District Name      | Year | Out Size | Land Owner                | General Cause  | Specific Cause                          | Ignition Month | Total Cost  |
|----------------|--------------------|------|----------|---------------------------|----------------|---|----------------|-------------|
| MILE POST 20   | Maggie Creek FPD   | 1996 | 200      | Private Property          | Debris Burning | Slash Burning, Prescribed               | 07             | \$37,789.74 |
| VIEW POINT #2  | Maggie Creek FPD   | 1996 | 0.1      | Private Property          | Miscellaneous  | Fireworks                               | 07             | \$71.04     |
| VIEW POINT #3  | Maggie Creek FPD   | 1996 | 0.1      | Private Property          | Miscellaneous  | Fireworks                               | 07             | \$83.72     |
| MOTORHOME      | Maggie Creek FPD   | 1996 | 70       | Private Property          | Equipment Use  | Equipment Use, No Further Breakdown     | 07             | \$78,947.74 |
| IDA ROAD       | Maggie Creek FPD   | 1996 | 10       | Private Property          | Miscellaneous  | Trash Burning, Burn Barrel              | 07             | \$5,260.17  |
| MP-59          | Maggie Creek FPD   | 1996 | 25       | Bureau Of Land Management | Smoking        | Cigarette                               | 08             | \$17,315.00 |
| MOHLER         | Maggie Creek FPD   | 1996 | 8        | Bureau Of Reclamation     | Debris Burning | Field Burning, Prescribed               | 08             | \$4,958.94  |
| 38 SPECIAL     | Maggie Creek FPD   | 1996 | 0.1      | Private Property          | Miscellaneous  | Miscellaneous, No Further Breakdown     | 09             | \$85.50     |
| TRAMWAY        | Maggie Creek FPD   | 1996 | 2        | Bureau Of Reclamation     | Debris Burning | Field Burning, Prescribed               | 09             | \$3,228.57  |
| ROCK CREEK     | Craig Mountain FPD | 1996 | 0.2      | Private Property          | Equipment Use  | Burning Vehicle                         | 07             | \$430.63    |
| BROCKER RANCH  | Craig Mountain FPD | 1996 | 0.1      | Private Property          | Lightning      | Lightning                               | 07             | \$230.68    |
| 277-95         | Craig Mountain FPD | 1996 | 0.1      | Private Property          | Smoking        | Cigarette                               | 08             | \$22.54     |
| COW FIRE       | Craig Mountain FPD | 1996 | 1.5      | Private Property          | Miscellaneous  | Powerline, Insulator, Transformers, Arc | 08             | \$731.74    |
| RED BIRD CREEK | Craig Mountain FPD | 1997 | 1        | Idaho Fish & Game         | Lightning      | Lightning                               | 07             | \$287.30    |
| OLD MELROSE    | Craig Mountain FPD | 1997 | 10       | Private Property          | Arson          | Arson, No Further Breakdown             | 09             | \$279.28    |
| DRAKE ROAD     | Maggie Creek FPD   | 1998 | 0.1      | Private Property          | Lightning      | Lightning                               | 06             | \$180.12    |
| HAMILTON ROAD  | Maggie Creek FPD   | 1998 | 0.1      | Private Property          | Lightning      | Lightning                               | 07             | \$546.47    |
| WATERS ROAD    | Maggie Creek FPD   | 1998 | 0.5      | Nez Perce Tribe           | Debris Burning | Field Burning, Prescribed               | 08             | \$1,000.79  |
| LITTLE CANYON  | Maggie Creek FPD   | 1998 | 0.2      | Private Property          | Lightning      | Lightning                               | 08             | \$2,326.83  |
| OLD 62         | Maggie Creek FPD   | 1998 | 16       | Nez Perce Tribe           | Lightning      | Lightning                               | 08             | \$19,684.19 |
| HOUSE          | Maggie Creek FPD   | 1998 | 0.1      | Private Property          | Arson          | Arson, No Further Breakdown             | 08             | \$2,076.99  |
| MP 278         | Craig Mountain FPD | 1998 | 0.1      | State Of Idaho            | Miscellaneous  | Burning Vehicle                         | 07             | \$63.81     |
| CADDY FIRE     | Craig Mountain FPD | 1998 | 50       | Private Property          | Equipment Use  | Exhaust System, Catalytic Converters    | 08             | \$346.99    |

**Table 4.3. Wildfire Extent Profile for Lewis County from the Idaho Department of Lands database 1983-2002.**

| Fire Name         | District Name      | Year | Out Size | Land Owner                         | General Cause  | Specific Cause                          | Ignition Month | Total Cost     |
|-------------------|--------------------|------|----------|------------------------------------|----------------|---|----------------|----------------|
| CENTRAL FIRE      | Craig Mountain FPD | 1998 | 0.1      | Private Property                   | Equipment Use  | Equipment Use, No Further Breakdown     | 08             | \$78.49        |
| COLD SPRINGS      | Craig Mountain FPD | 1998 | 1        | Private Property                   | Lightning      | Lightning                               | 08             | \$27.85        |
| TRAUTMAN ROAD     | Craig Mountain FPD | 1998 | 5        | Private Property                   | Lightning      | Lightning                               | 08             | \$27.85        |
| WEST DIVIDE CREEK | Craig Mountain FPD | 1998 | 0.5      | State Of Idaho                     | Lightning      | Lightning                               | 08             | \$3,154.06     |
| MISSION CREEK     | Craig Mountain FPD | 1998 | 1        | Private Property                   | Debris Burning | Debris Burning, No Further Breakdown    | 09             | \$3,103.09     |
| LITTLTE CANYON    | Maggie Creek FPD   | 1999 | 0.1      | Private Property                   | Lightning      | Lightning                               | 06             | \$371.83       |
| LONE FIR          | Maggie Creek FPD   | 1999 | 7        | Nez Perce Tribe                    | Miscellaneous  | Miscellaneous, No Further Breakdown     | 07             | \$7,868.19     |
| PRINCE            | Maggie Creek FPD   | 1999 | 0.1      | Idaho Department of Transportation | Miscellaneous  | Powerline, Insulator, Transformers, Arc | 07             | \$161.38       |
| VIEW POINT        | Maggie Creek FPD   | 1999 | 0.2      | Private Property                   | Miscellaneous  | Unknown                                 | 10             | \$154.05       |
| PRE-TEST          | Craig Mountain FPD | 1999 | 5        | Private Property                   | Debris Burning | Slash Burning, Prescribed               | 05             | \$849.08       |
| FLETCHER          | Craig Mountain FPD | 1999 | 0.1      | Private Property                   | Lightning      | Lightning                               | 08             | \$1,459.50     |
| REUBENS           | Craig Mountain FPD | 1999 | 0.1      | Private Property                   | Miscellaneous  | Slash Burning, Prescribed               | 1              | \$279.40       |
| OSPREY            | Maggie Creek FPD   | 2000 | 0.1      | Private Property                   | Miscellaneous  | Powerline, Insulator, Transformers, Arc | 04             | \$234.74       |
| EVERGREEN         | Maggie Creek FPD   | 2000 | 5        | Private Property                   | Lightning      | Lightning                               | 08             | \$614.76       |
| ALLEN             | Maggie Creek FPD   | 2000 | 6.7      | Private Property                   | Lightning      | Lightning                               | 08             | \$12,769.62    |
| MP 62             | Maggie Creek FPD   | 2000 | 0.1      | Private Property                   | Lightning      | Lightning                               | 08             | \$896.87       |
| DRAKE             | Maggie Creek FPD   | 2000 | 3        | Private Property                   | Lightning      | Lightning                               | 08             | \$740.87       |
| STITES            | Maggie Creek FPD   | 2000 | 1.5      | Private Property                   | Debris Burning | Slash Burning, Prescribed               | 08             | \$3,995.46     |
| WILLOW CREEK      | Craig Mountain FPD | 2000 | 1        | Private Property                   | Miscellaneous  | Unknown                                 | 08             | \$1,977.33     |
| POST HOLE         | Craig Mountain FPD | 2000 | 1        | Private Property                   | Lightning      | Lightning                               | 08             | \$2,965.29     |
| HAWKS GROUND      | Craig Mountain FPD | 2000 | 100      | Private Property                   | Lightning      | Lightning                               | 08             | \$205,014.15   |
| MIDDLE SLASH      | Craig Mountain FPD | 2000 | 0.25     | Private Property                   | Lightning      | Lightning                               | 08             | \$1,961.61     |
| WEST FORK MALONEY | Craig Mountain FPD | 2000 | 0.2      | State Of Idaho                     | Lightning      | Lightning                               | 08             | \$88.46        |
| MALONEY           | Craig Mountain FPD | 2000 | 74,500   | Private Property                   | Lightning      | Lightning                               | 08             | \$5,000,000.00 |

**Table 4.3. Wildfire Extent Profile for Lewis County from the Idaho Department of Lands database 1983-2002.**

| Fire Name             | District Name      | Year | Out Size | Land Owner       | General Cause  | Specific Cause                          | Ignition Month | Total Cost   |
|-----------------------|--------------------|------|----------|------------------|----------------|---|----------------|--------------|
| POST HOLE SOUTH       | Craig Mountain FPD | 2000 | 3        | Private Property | Lightning      | Lightning                               | 08             | \$11,266.05  |
| MAREK RANCH           | Craig Mountain FPD | 2000 | 0.1      | Private Property | Lightning      | Lightning                               | 08             |              |
| WOODSIDE ROAD         | Craig Mountain FPD | 2000 | 1        | Private Property | Lightning      | Lightning                               | 08             | \$1,578.89   |
| EAST FORK MALONEY CR. | Craig Mountain FPD | 2000 | 0.25     | Private Property | Lightning      | Lightning                               | 08             |              |
| BASE CAMP             | Craig Mountain FPD | 2000 | 0.1      | Private Property | Lightning      | Lightning                               | 08             | \$610.77     |
| BIG CANYON            | Craig Mountain FPD | 2000 | 50       | Private Property | Lightning      | Lightning                               | 09             | \$5,015.91   |
| THE OTHER FIRE        | Craig Mountain FPD | 2000 | 0.1      | Nez Perce Tribe  | Lightning      | Lightning                               | 08             | \$0.00       |
| GREER                 | Maggie Creek FPD   | 2001 | 0.1      | Private Property | Campfire       | Campfire, No Further Breakdown          | 05             | \$678.25     |
| LITTLE CANYON         | Maggie Creek FPD   | 2001 | 0.25     | Private Property | Lightning      | Lightning                               | 07             | \$280.59     |
| TOMMY CAMPFIRE        | Maggie Creek FPD   | 2001 | 0.1      | Private Property | Campfire       | Campfire, No Further Breakdown          | 07             | \$32.48      |
| 162                   | Maggie Creek FPD   | 2001 | 0.1      | Private Property | Equipment Use  | Equipment Use, No Further Breakdown     | 08             | \$223.49     |
| TUNNEL                | Maggie Creek FPD   | 2001 | 0.1      | State Of Idaho   | Campfire       | Campfire, No Further Breakdown          | 08             | \$33.72      |
| FLYING B              | Maggie Creek FPD   | 2001 | 0.1      | Private Property | Campfire       | Campfire, No Further Breakdown          | 08             | \$3.15       |
| RUSSELL 10            | Maggie Creek FPD   | 2001 | 0.1      | Private Property | Lightning      | Lightning                               | 08             | \$561.36     |
| PITCHY PINE           | Craig Mountain FPD | 2001 | 0.1      | Nez Perce Tribe  | Campfire       | Unknown                                 | 07             | \$251.70     |
| MAREK ROAD            | Craig Mountain FPD | 2001 | 0.1      | Nez Perce Tribe  | Lightning      | Lightning                               | 07             | \$1,436.13   |
| NUCRAG                | Craig Mountain FPD | 2001 | 116      | Private Property | Equipment Use  | Equipment Use, No Further Breakdown     | 08             | \$240,960.62 |
| WINCHESTER CAMP       | Craig Mountain FPD | 2001 | 0.1      | Nez Perce Tribe  | Arson          | Arson, No Further Breakdown             | 09             | \$82.69      |
| METAL TRESSEL         | Craig Mountain FPD | 2001 | 0.1      | State Of Idaho   | Arson          | Unknown                                 | 09             | \$162.74     |
| DOUBLE TWIST          | Craig Mountain FPD | 2001 | 0.1      | Nez Perce Tribe  | Debris Burning | Illegal Burning                         | 09             | \$90.21      |
| CAMPFIRE - GREER      | Maggie Creek FPD   | 2002 | 0.1      | Private Property | Campfire       | Campfire, No Further Breakdown          | 07             | \$249.39     |
| COTTONWOOD NEAR GREER | Maggie Creek FPD   | 2002 | 5        | Private Property | Lightning      | Lightning                               | 08             | \$33,977.84  |
|                       | Maggie Creek FPD   | 2002 | 0.1      | Private Property | Miscellaneous  | Powerline, Insulator, Transformers, Arc | 10             | \$153.15     |
| MOHLER                | Maggie Creek FPD   | 2002 | 10       | Private Property | Debris Burning | Field Burning, Prescribed               | 10             | \$60.56      |

**Table 4.3. Wildfire Extent Profile for Lewis County from the Idaho Department of Lands database 1983-2002.**

| Fire Name    | District Name      | Year | Out Size | Land Owner       | General Cause | Specific Cause | Ignition Month | Total Cost |
|--------------|--------------------|------|----------|------------------|---------------|----------------|----------------|------------|
| REEDS CORNER | Craig Mountain FPD | 2002 | 0.1      | Private Property | Lightning     | Lightning      | 07             | \$312.74   |
| LEANING PINE | Craig Mountain FPD | 2002 | 0.1      | Private Property | Lightning     | Lightning      | 09             | \$434.86   |
| WOODSIDE     | Craig Mountain FPD | 2002 | 0.1      | Nez Perce Tribe  | Lightning     | Lightning      | 09             | \$1,664.52 |

## 4.2.2 Wildfire Extent Profile

Across the west, wildfires have been increasing in extent and cost of control. The National Interagency Fire Center (2003) reports nearly 88,500 wildfires in 2002 burned a total of nearly 7 million acres and cost \$1.6 billion (Table 4.4). By most informed accounts, the 2003 totals will be significantly higher in terms of acres burned and cost.

**Table 4.4. National Fire Season Summaries.**

| Statistical Highlights  | 2000             | 2001             | 2002             | 2003             | 2004             |
|---|------------------|------------------|------------------|------------------|------------------|
| Number of Fires   | 122,827          | 84,079           | 88,458           | 85,943           | 77,534           |
| 10-year Average<br>ending with indicated year                 | 106,393          | 106,400          | 103,112          | 101,575          | 100,466          |
| Acres Burned  | <b>8,422,237</b> | <b>3,555,138</b> | <b>6,937,584</b> | <b>4,918,088</b> | <b>6,790,692</b> |
| 10-year Average<br>ending with indicated year                 | 3,786,411        | 4,083,347        | 4,215,089        | 4,663,081        | 4,923,848        |
| Structures Burned   | 861              | 731              | 2,381            | 5,781            | 1,095            |
| Estimated Cost of Fire Suppression<br>(Federal agencies only) | \$1.3 billion    | \$917 million    | \$ 1.6 billion   | \$1.3 billion    | \$890 million    |

The National Interagency Fire Center, located in Boise, Idaho, maintains records of fire costs, extent, and related data for the entire nation. Tables 4.5 and 4.6 summarize some of the relevant wildland fire data for the nation, and some trends that are likely to continue into the future unless targeted fire mitigation efforts are implemented and maintained.

These statistics (Table 4.5) are based on end-of-year reports compiled by all wildland fire agencies after each fire season, and are updated by March of each year. The agencies include: Bureau of Land Management, Bureau of Indian Affairs, National Park Service, US Fish and Wildlife Service, USDA Forest Service and all State Lands.

**Table 4.5. Total Fires and Acres 1960 - 2004 Nationally.**

| Year | Fires   | Acres       | Year | Fires   | Acres     |
|------|---------|-------------|------|---------|-----------|
| 2004 | 77,534  | * 6,790,692 | 1981 | 249,370 | 4,814,206 |
| 2003 | 85,943  | 4,918,088   | 1980 | 234,892 | 5,260,825 |
| 2002 | 88,458  | 6,937,584   | 1979 | 163,196 | 2,986,826 |
| 2001 | 84,079  | 3,555,138   | 1978 | 218,842 | 3,910,913 |
| 2000 | 122,827 | 8,422,237   | 1977 | 173,998 | 3,152,644 |
| 1999 | 93,702  | 5,661,976   | 1976 | 241,699 | 5,109,926 |
| 1998 | 81,043  | 2,329,709   | 1975 | 134,872 | 1,791,327 |
| 1997 | 89,517  | 3,672,616   | 1974 | 145,868 | 2,879,095 |
| 1996 | 115,025 | 6,701,390   | 1973 | 117,957 | 1,915,273 |
| 1995 | 130,019 | 2,315,730   | 1972 | 124,554 | 2,641,166 |
| 1994 | 114,049 | 4,724,014   | 1971 | 108,398 | 4,278,472 |
| 1993 | 97,031  | 2,310,420   | 1970 | 121,736 | 3,278,565 |
| 1992 | 103,830 | 2,457,665   | 1969 | 113,351 | 6,689,081 |
| 1991 | 116,953 | 2,237,714   | 1968 | 125,371 | 4,231,996 |
| 1990 | 122,763 | 5,452,874   | 1967 | 125,025 | 4,658,586 |
| 1989 | 121,714 | 3,261,732   | 1966 | 122,500 | 4,574,389 |
| 1988 | 154,573 | 7,398,889   | 1965 | 113,684 | 2,652,112 |
| 1987 | 143,877 | 4,152,575   | 1964 | 116,358 | 4,197,309 |
| 1986 | 139,980 | 3,308,133   | 1963 | 164,183 | 7,120,768 |
| 1985 | 133,840 | 4,434,748   | 1962 | 115,345 | 4,078,894 |
| 1984 | 118,636 | 2,266,134   | 1961 | 98,517  | 3,036,219 |

**Table 4.5. Total Fires and Acres 1960 - 2004 Nationally.**

| Year | Fires   | Acres     | Year | Fires   | Acres     |
|------|---------|-----------|------|---------|-----------|
| 1983 | 161,649 | 5,080,553 | 1960 | 103,387 | 4,478,188 |
| 1982 | 174,755 | 2,382,036 |      |         |           |

(National Interagency Fire Center 2004)

**Table 4.5. Suppression Costs for Federal Agencies Nationally.**

| Year | Bureau of Land Management | Bureau of Indian Affairs | Fish and Wildlife Service | National Park Service | USDA Forest Service | Totals                 |
|------|---------------------------|--------------------------|---------------------------|-----------------------|---------------------|------------------------|
| 2004 | \$ 147,165,000            | \$ 63,452,000            | \$ 7,979,000              | \$ 34,052,000         | \$ 637,585,000      | <b>\$890,233,000</b>   |
| 2003 | \$151,894,000             | \$ 96,633,000            | \$ 9,554,000              | \$ 44,557,000         | \$ 1,023,500,000    | <b>\$1,326,138,000</b> |
| 2002 | \$ 204,666,000            | \$ 109,035,000           | \$ 15,245,000             | \$ 66,094,000         | \$ 1,266,274,000    | <b>\$1,661,314,000</b> |
| 2001 | \$ 192,115,00             | \$ 63,200,000            | \$ 7,160,000              | \$ 48,092,000         | \$ 607,233,000      | <b>\$917,800,000</b>   |
| 2000 | \$180,567,000             | \$ 93,042,000            | \$ 9,417,000              | \$ 53,341,000         | \$ 1,026,000,000    | <b>\$1,362,367,000</b> |
| 1999 | \$ 85,724,000             | \$ 42,183,000            | \$ 4,500,000              | \$ 30,061,000         | \$ 361,000,000      | <b>\$523,468,000</b>   |
| 1998 | \$ 63,177,000             | \$ 27,366,000            | \$ 3,800,000              | \$ 19,183,000         | \$ 215,000,000      | <b>\$328,526,000</b>   |
| 1997 | \$ 62,470,000             | \$ 30,916,000            | \$ 2,000                  | \$ 6,844,000          | \$ 155,768,000      | <b>\$256,000,000</b>   |
| 1996 | \$ 96,854,000             | \$ 40,779,000            | \$ 2,600                  | \$ 19,832,000         | \$ 521,700,000      | <b>\$679,167,600</b>   |
| 1995 | \$ 56,600,000             | \$ 36,219,000            | \$ 1,675,000              | \$ 21,256,000         | \$ 224,300,000      | <b>\$340,050,000</b>   |
| 1994 | \$ 98,417,000             | \$ 49,202,000            | \$ 3,281,000              | \$ 16,362,000         | \$ 678,000,000      | <b>\$845,262,000</b>   |

(National Interagency Fire Center 2005)

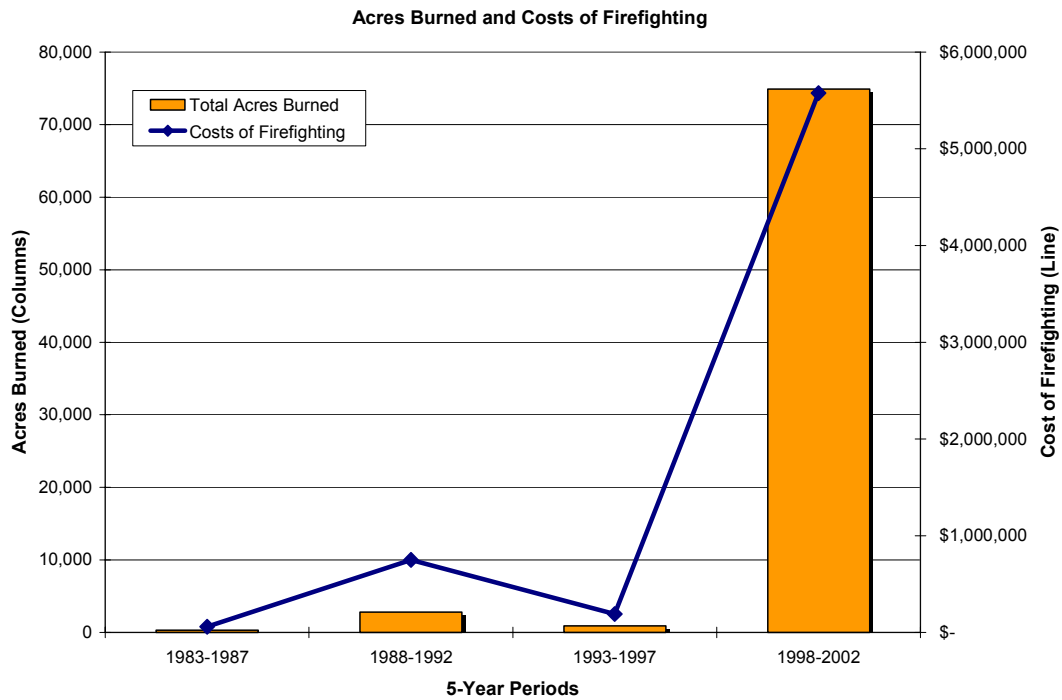
Although many very large fires, growing to over 250,000 acres have burned in North Central Idaho, which Lewis County is a part, actual fires in this county have usually been controlled at much smaller extents. One notable exception to this was the Maloney Fire in 2000 which burned over 74,500 acres costing approximately \$5.0 million to contain. Other large fires have occurred in and around Lewis County (Tables 4.1 & 4.3). When considering the past 20 years of data provided by the Idaho Department of Lands, the average number of acres burned and cost of firefighting is highly influenced by the Maloney Fire of 2000 (Table 4.7 & Figure 4.3). When this one fire is removed from the dataset, the average area burned each 5-year period is approximately 1,100 acres (222 acres per year) at a 5-year periodic cost of \$400,000 (\$78,700 per year average) (Figure 4.3).

**Table 4.7. Wildfire Ignition and Extent Profile in Lewis County from the Idaho Department of Lands database 1983-2002.**

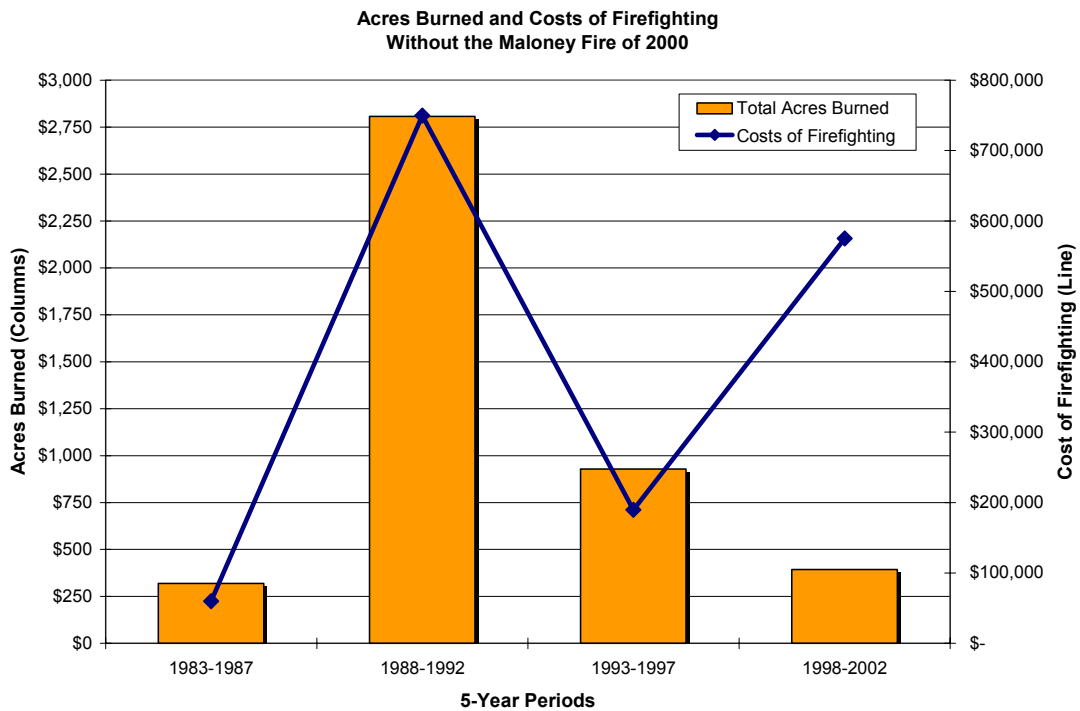
|                                    | 1983-1987 | 1988-1992  | 1993-1997  | 1998-2002    |
|------------------------------------|-----------|------------|------------|--------------|
| <i>--- Number of Ignitions ---</i> |           |            |            |              |
| Lightning Ignition                 | 28        | 39         | 10         | 32           |
| Human Ignition                     | 30        | 28         | 21         | 19           |
| Miscellaneous Ignition             | 5         | 4          | 9          | 8            |
| <i>--- Totals ---</i>              |           |            |            |              |
| Acres Burned                       | 319       | 2,808      | 929        | 74,894       |
| Costs of Firefighting              | \$ 59,791 | \$ 749,747 | \$ 189,786 | \$ 5,575,142 |

The Idaho Department of Lands provides primary wildfire protection in Lewis County, rural and city fire districts augment these services with home protection and related services.

**Figure 4.3. Past wildfire extent profile by 5–year period in Lewis County.**



**Figure 4.4. Past wildfire extent profile by 5–year period in Lewis County, without the Maloney Fire of 2000.**



#### **4.2.2.1 Milepost 59 Fire, August 14, 2003**

The Milepost 59 fire started at 9:00 P.M. on August 14, 2003. The fire was caused by a catalytic converter on a disabled vehicle. The vehicle ran out of gas and pulled onto the shoulder of US highway 12, approximately 7 miles northwest of Kamiah, Idaho. The fire was located on the west side of highway 12 at the base of a steep slope with a northeast aspect.

The fire was reported at 9:05, and the first engine arrived on-scene at 9:20. At that point, the fire was estimated to be several acres in size, and was expanding rapidly. Although an attempt was made with crews, engines and 2 dozers to initial attack the fire, suppression efforts were unsuccessful due to extended drought conditions, steep terrain, rock bluffs, and the inability to mobilize air resources at night.

Suppression efforts began in earnest by early morning on August 15<sup>th</sup>. Poor visibility created by smoke and an inversion limited effective air support. Dozers and hand crews attempted to hold the fire at 150 acres with fire lines and burn out operations. By mid-morning the inversion lifted and the wind picked up. The fire blew up to approximately 2,000 acres, and made an upriver run of about 2 miles. The fire, managed as a Type 3 incident, was divided into 2 divisions, with over 100 people, 3 dozers, 3 engines and an assortment of volunteer and rural equipment on-scene. A decision was made to request a Type 2 incident management team.

By August 16<sup>th</sup>, the fire had doubled again to over 4,700 acres, and was threatening residences. The fire was essentially being attacked from 2 locations. The Department of Lands was spear-heading the attack on both the upriver and downriver flanks of the fire on Highway 12, and the Nezperce rural fire department and local farmers were working the agriculture lands on the west side of the fire. Suppression forces had also doubled in size with more than 200 people assigned to the fire, not including volunteers. Two residences within the fire were saved by burn-out operations and air support, and a number of other residences ahead of the fire were prepped for the approaching fire. A decision to close highway 12 to all but emergency vehicles was made.

By nightfall on Sunday, August 17<sup>th</sup>, the fire was contained at an estimated size of 5,500 acres, and a Florida Type 2 team arrived. The Florida team shadowed the Type 3 team all day Monday and assumed control of the fire at the end of the shift on August 18<sup>th</sup>. The fire organization at this time included a 32 person Type 2 team, and approximately 250 people including 12 dozers, 10 engines, and 5 helicopters.

The team established their incident command post in the town of Nezperce where they set up operations for one week. During the week the fire organization expanded to 7 divisions and over 500 people. The fire was turned back to the IDL Type 3 team on Monday, August 25<sup>th</sup>. The final shift was completed by Friday, August 29<sup>th</sup>, 15 days after ignition. The final size of the fire was 8,142 acres, and the total cost was approximately \$2.6 million.

A number of issues surfaced during the milepost 59 incident. These can be grouped into the following categories:

- Safety,
- Communications,
- Command Structure and Organization,
- Training, and
- Fire prevention.

The Nezperce rural fire department and other volunteer firefighters were very organized. However, they did not understand the ICS basic command structure, or specifics regarding agency fire organization. Also, they were not initially tied in with the incident commander. This led to a lack of good communication and organization between the command staff and the rural and volunteer efforts. It also created finance issues and compromised safety.

Many, if not all, of these issues, can be solved through cooperative classroom and practical training exercises. Involvement of all the emergency services providers should be encouraged to build good working relationships.

### **4.3 Wildfire Hazard Assessment**

Lewis County and the adjacent counties of Latah, Clearwater, Nez Perce, and Idaho Counties, were analyzed using a variety of techniques, managed on a GIS system (ArcGIS 8.2). Physical features of the region were represented by data layers including roads, streams, soils, elevation, and remotely sensed images from the Landsat 7 ETM+ satellite. Field visits were conducted by specialists from Northwest Management, Inc., and others. Discussions with area residents and fire control specialists augmented field visits and provided insights to forest health issues and treatment options.

This information was analyzed and combined to develop an assessment of wildland fire risk in the region.

#### **4.3.1 Fire Prone Landscapes**

Schlosser *et al.* 2002, developed a methodology to assess the location of fire prone landscapes on forested and non-forested ecosystems in the western US. Northwest Management, Inc., a natural resources consulting firm, has completed similar assessments on over 30 counties and Indian Reservations in Idaho, Montana, Nevada, and Washington to determine fire prone landscape characteristics.

The goal of developing the Fire Prone Landscapes analysis is to make inferences about the relative risk factors across large geographical regions (multiple counties) for wildfire spread. This analysis uses the extent and occurrence of past fires as an indicator of characteristics for a specific area and their propensity to burn in the future. Concisely, if a certain combination of vegetation cover type, canopy closure, aspect, slope, stream and road density have burned with a high occurrence and frequently in the past, then it is reasonable to extrapolate that they will have the same tendency in the future, unless mitigation activities are conducted to reduce this potential.

The analysis for determining those landscapes prone to wildfire utilized a variety of sources.

**Digital Elevation:** Digital elevation models (DEM) for this project used USGS 10 meter DEM data provided at quarter-quadrangle extents. These were merged together to create a continuous elevation model of the analysis area.

The merged DEM file was used to create two derivative data layers; aspect and slope. Both were created using the spatial analyst extension in ArcGIS 8.2. Aspect data values retained one decimal point accuracy representing the cardinal direction of direct solar radiation, represented in degrees. Slope was recorded in degrees and retained two decimal points accuracy.

**Remotely Sensed Images:** Landsat 7 Enhanced Thematic Mapper (ETM+) images were used to assess plant cover information and percent of canopy cover. The Landsat ETM+ instrument is an eight-band multi-spectral scanning radiometer capable of providing high-resolution image information of the Earth's surface. It detects spectrally-filtered radiation at visible, near-infrared,

short-wave, and thermal infrared frequency bands from the sun-lit Earth. Nominal ground sample distances or "pixel" sizes are 15 meters in the panchromatic band; 30 meters in the 6 visible, near and short-wave infrared bands; and 60 meters in the thermal infrared band.

The satellite orbits the Earth at an altitude of approximately 705 kilometers with a sun-synchronous 98-degree inclination and a descending equatorial crossing time of 10 a.m. daily.

Image spectrometry has great application for monitoring vegetation and biophysical characteristics. Vegetation reflectance often contains information on the vegetation chlorophyll absorption bands in the visible region and the near infrared region. Plant water absorption is easily identified in the middle infrared bands. In addition, exposed soil, rock, and non-vegetative surfaces are easily separated from vegetation through standard hyper-spectral analysis procedures.

Two Landsat 7 ETM images were obtained to conduct hyper-spectral analysis for this project. The first was obtained in 1998 and the second in 2002. Hyper-spectral analysis procedures followed the conventions used by the Idaho Vegetation and Land Cover Classification System, modified from Redmond (1997) and Homer (1998).

**Riparian Zones:** Riparian zones were derived from stream layers created during the Interior Columbia Basin Ecosystem Management Project (Quigley *et al.* 2001).

**Wind Direction:** Wind direction and speed data detailed by monthly averages was used in this project to better ascertain certain fire behavior characteristics common to large fire events. These data are spatially gridded Average Monthly Wind Directions in Idaho. The coverage was created from data summarized from the Interior Columbia Basin Ecosystem Management Project (Quigley *et al.* 2001).

**Past Fires:** Past fire extents represent those locations on the landscape that have previously burned during a wildfire. Past fire extent maps were obtained from a variety of sources for the North Central Idaho area including the USFS Nez Perce and Clearwater National Forests and the Idaho Department of Lands.

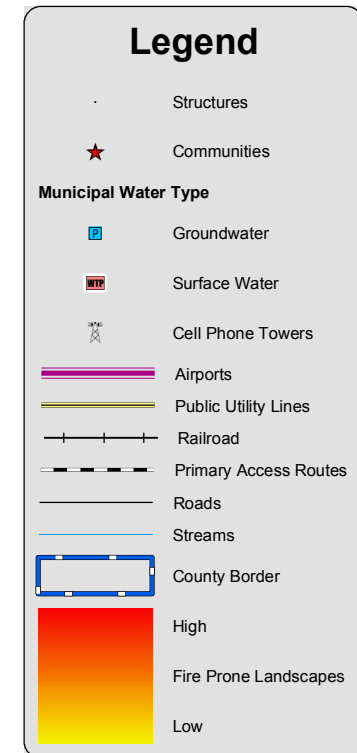
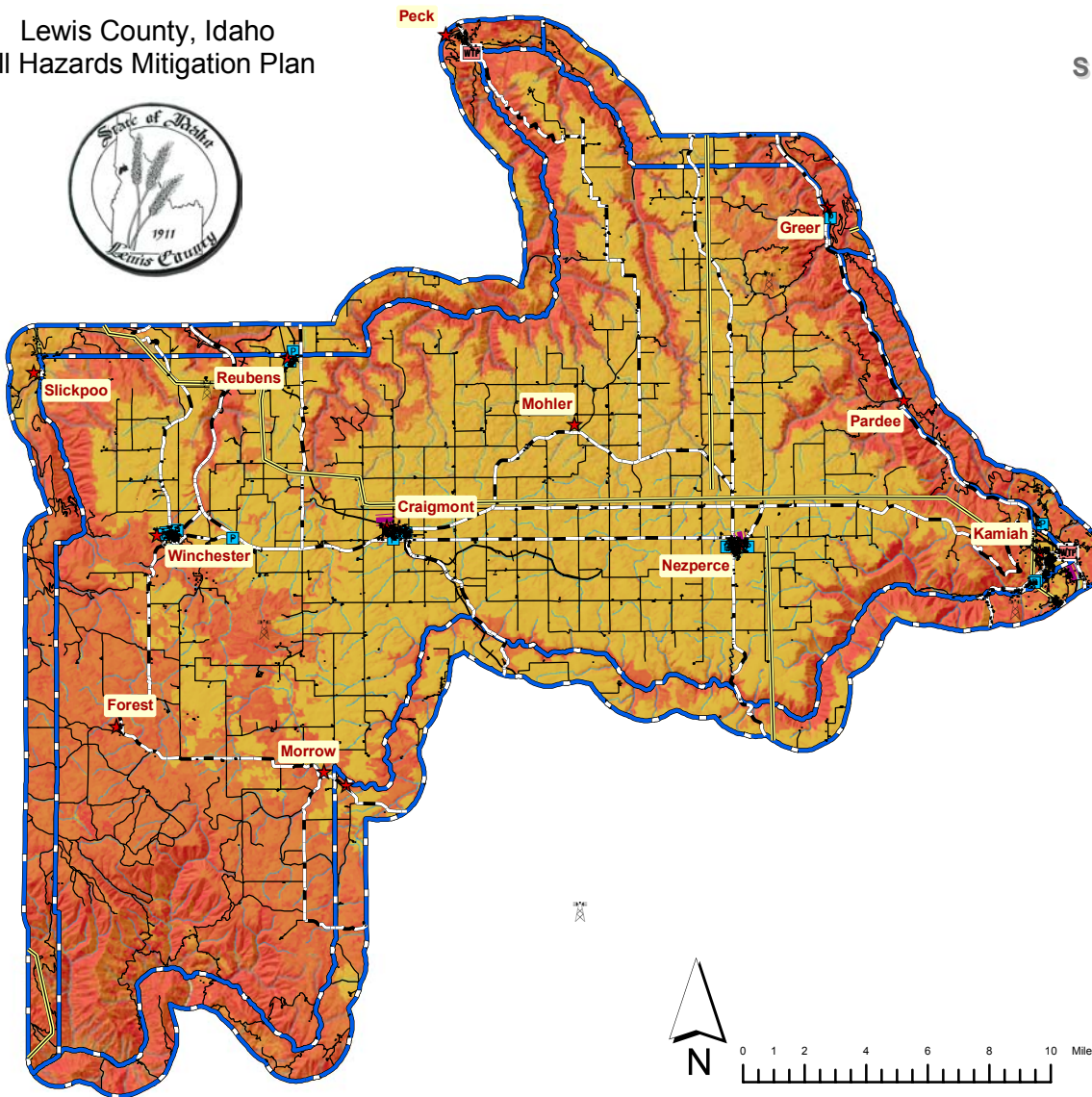
**Fire Prone Landscapes:** Using the methodology developed by Schlosser *et al.* (2002, 2003, 2004), and refined for this project, the factors detailed above were used to assess the potential for the landscape to burn during the fire season in the case of fire ignition. Specifically, the entire region was evaluated at a resolution of 10 meters (meaning each pixel on the screen represented a 10 meter square on the ground) to determine the propensity for a particular area (pixel) to burn in the case of a wildfire. The analysis involved creating a linear regression analysis within the GIS program structure to assign a value to each significant variable, pixel-by-pixel. The analysis ranked factors from 0 (little to no risk) to 100 (extremely high risk) based on past fire occurrence. In fact, the maximum rating score for Lewis County was 95 with a low of 23.

**Figure 4.5. Fire Prone Landscapes in Lewis County, Idaho.**

Lewis County, Idaho  
All Hazards Mitigation Plan




**Fire Prone Landscapes  
Significant Infrastructure**

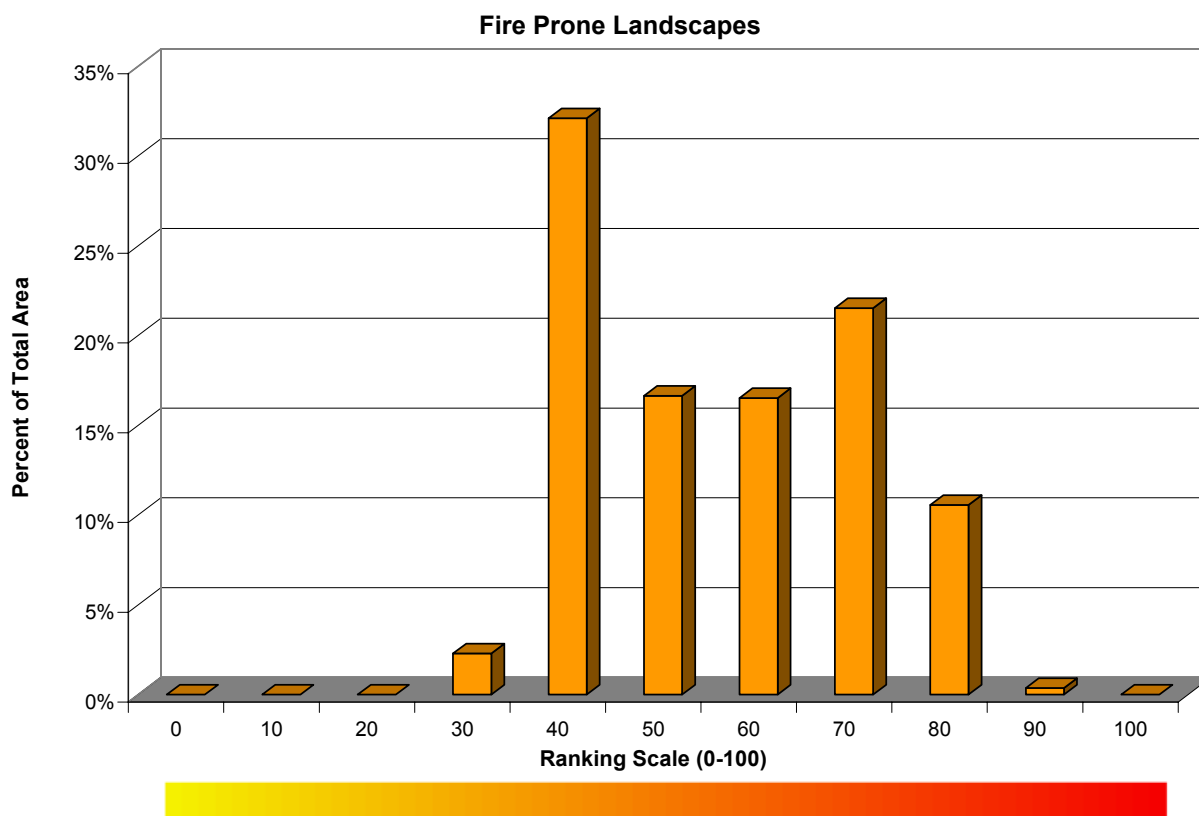


The maps depicting these risk categories display yellow as the lowest risk and red as the highest with values between a constant gradient from yellow to orange to red (Table 4.8). While large maps (16 square feet) have been provided as part of this analysis, smaller size maps are presented in Appendix I.

**Table 4.8. Fire Prone Landscape rankings and associated acres in each category for Lewis County.**

| Color Code  | Value | Total Acres | Percent of Total Area |
|---|-------|-------------|-----------------------|
|  | 0     | -           | 0.0%                  |
|   | 10    | -           | 0.0%                  |
|   | 20    | -           | 0.0%                  |
|   | 30    | 9,047       | 2.3%                  |
|   | 40    | 126,938     | 32.1%                 |
|   | 50    | 65,807      | 16.6%                 |
|   | 60    | 65,317      | 16.5%                 |
|   | 70    | 85,130      | 21.5%                 |
|   | 80    | 41,787      | 10.6%                 |
|   | 90    | 1,452       | 0.4%                  |
|   | 100   | 13          | 0.0%                  |

**Figure 4.6. Distribution of Fire Prone Landscapes in Lewis County by ranking scale.**



The risk category values developed in this analysis should be considered **ordinal data**, that is, while the values presented have a meaningful ranking, they neither have a true zero point nor scale between numbers. Rating in the “40” range is not necessarily twice as “risky” as rating in the “20” range. These category values also do not correspond to a rate of fire spread, a fuel loading indicator, or measurable potential fire intensity. Each of those scales is greatly influenced by weather, seasonal and daily variations in moisture (relative humidity), solar radiation, and other factors. The risk rating presented here serves to identify where certain constant variables are present, aiding in identifying where fires typically spread into the largest fires across the landscape.

### 4.3.2 Fire Regime Condition Class

The US Forest Service has provided their assessment of Fire Regime Condition Class for the natural vegetation areas of Lewis County to this WUI Wildfire Mitigation Plan analysis. These measures of forest conditions are the standard method of analysis for the USDA Forest Service.

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning (Agee 1993, Brown 1995). Coarse scale definitions for natural (historical) fire regimes have been developed by Hardy *et al.* (2001) and Schmidt *et al.* (2002) and interpreted for fire and fuels management by Hann and Bunnell (2001). The five natural (historical) fire regimes are classified based on average number of years between fires (fire frequency) combined with the severity (amount of replacement) of the fire on the dominant overstory vegetation. These five regimes include:

- I – 0-35 year frequency and low (surface fires most common) to mixed severity (less than 75% of the dominant overstory vegetation replaced);
- II – 0-35 year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced);
- III – 35-100+ year frequency and mixed severity (less than 75% of the dominant overstory vegetation replaced);
- IV – 35-100+ year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced);
- V – 200+ year frequency and high (stand replacement) severity.

As scale of application becomes finer these five classes may be defined with more detail, or any one class may be split into finer classes, but the hierarchy to the coarse scale definitions should be retained.

A fire regime condition class (FRCC) is a classification of the amount of departure from the natural regime (Hann and Bunnell 2001). Coarse-scale FRCC classes have been defined and mapped by Hardy *et al.* (2001) and Schmidt *et al.* (2001) (FRCC). They include three condition classes for each fire regime. The classification is based on a relative measure describing the degree of departure from the historical natural fire regime. This departure results in changes to one (or more) of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated disturbances (e.g. insect and diseased mortality, grazing, and drought). There are no wildland vegetation and fuel conditions or wildland fire situations that do not fit within one of the three classes.

The three classes are based on low (FRCC 1), moderate (FRCC 2), and high (FRCC 3) departure from the central tendency of the natural (historical) regime (Hann and Bunnell 2001,

Hardy *et al.* 2001, Schmidt *et al.* 2002). The central tendency is a composite estimate of vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated natural disturbances. Low departure is considered to be within the natural (historical) range of variability, while moderate and high departures are outside.

Characteristic vegetation and fuel conditions are considered to be those that occurred within the natural (historical) fire regime. Uncharacteristic conditions are considered to be those that did not occur within the natural (historical) fire regime, such as invasive species (e.g. weeds, insects, and diseases), “high graded” forest composition and structure (e.g. large trees removed in a frequent surface fire regime), or repeated annual grazing that maintains grassy fuels across relatively large areas at levels that will not carry a surface fire. Determination of the amount of departure is based on comparison of a composite measure of fire regime attributes (vegetation characteristics; fuel composition; fire frequency, severity and pattern) to the central tendency of the natural (historical) fire regime. The amount of departure is then classified to determine the fire regime condition class. A simplified description of the fire regime condition classes and associated potential risks are presented in Table 4.9. Maps depicting Fire Regime and Condition Class are presented in Appendix I.

**Table 4.9. Fire Regime Condition Class Definitions.**

| <b>Fire Regime<br/>Condition Class</b> | <b>Description</b>  | <b>Potential Risks</b>   |
|--|---|--|
| <b>Condition Class 1</b>               | Within the natural (historical) range of variability of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.    | Fire behavior, effects, and other associated disturbances are similar to those that occurred prior to fire exclusion (suppression) and other types of management that do not mimic the natural fire regime and associated vegetation and fuel characteristics. Composition and structure of vegetation and fuels are similar to the natural (historical) regime. Risk of loss of key ecosystem components (e.g. native species, large trees, and soil) is low. |
| <b>Condition Class 2</b>               | Moderate departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances. | Fire behavior, effects, and other associated disturbances are moderately departed (more or less severe). Composition and structure of vegetation and fuel are moderately altered. Uncharacteristic conditions range from low to moderate. Risk of loss of key ecosystem components is moderate.  |
| <b>Condition Class 3</b>               | High departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.     | Fire behavior, effects, and other associated disturbances are highly departed (more or less severe). Composition and structure of vegetation and fuel are highly altered. Uncharacteristic conditions range from moderate to high. Risk of loss of key ecosystem components is high.   |

An analysis of Fire Regime Condition Class in Lewis County shows that approximately 6% of the County is in Condition Class 1 (low departure), just about 7% is in Condition Class 2 (moderate departure), with 25% of the area in Condition Class 3 (Table 4.10).

**Table 4.10. FRCC by area in Lewis County.**

|    | <b>Condition Class</b>         | <b>Acres</b> | <b>Percent of Area</b> |
|----|--------------------------------|--------------|------------------------|
| 1  | low departure                  | 25,368       | 6.4%                   |
| 2  | moderate departure             | 28,568       | 7.2%                   |
| 3  | high departure                 | 99,377       | 25.1%                  |
| 4  | moderate departure grass/shrub | 32,337       | 8.2%                   |
| 8  | agriculture                    | 191,537      | 48.4%                  |
| 9  | rock/barren                    | 15,278       | 3.9%                   |
| 10 | urban                          | 1,209        | 0.3%                   |
| 11 | water                          | 1,919        | 0.5%                   |
| 13 | no information                 | 128          | 0.0%                   |

See Appendix I for maps of Fire Regime and Conditions Class.

### **4.3.3 Predicted Fire Severity**

Current fire severity (CFS) is an estimate of the relative fire severity if a fire were to burn a site under its current state of vegetation. In other words, how much of the overstory would be removed if a fire were to burn today. The US Forest Service (Flathead National Forest) did not attempt to model absolute values of fire severity, as there are too many variables that influence fire effects at any given time (for example, temperature, humidity, fuel moisture, slope, wind speed, wind direction).

The characterization of likely fire severity was based upon historic fire regimes, potential natural vegetation, cover type, size class, and canopy cover with respect to slope and aspect. Each cover type was assigned a qualitative rating of fire tolerance based upon likely species composition and the relative resistance of each species to fire. The US Forest Service researchers defined 3 broad classes of fire tolerance: high tolerance (<20 percent post-fire mortality); moderate tolerance (20 to 80 percent mortality); and low tolerance (>80 percent mortality). We would expect that fires would be less severe within cover types comprised by species that have a high tolerance to fire (for example, western larch and ponderosa pine). Conversely, fires would likely burn more severely within cover types comprised by species having a low tolerance to fire (for example grand fir, subalpine fir). Data assignments were based upon our collective experience in the field, as well as stand structure characteristics reported in the fire-history literature. For example, if they estimated that a fire would remove less than 20 percent of the overstory, the current fire severity would be assigned to the non-lethal class (that is, NL). However, if they expected fire to remove more than 80 percent of the overstory, the current fire severity was assigned to a stand replacement class (that is, SR or SR3).

#### **4.3.3.1 Purpose**

Fire is a dominant disturbance process in the Northern Rockies. The likely effect of fire upon vegetation (i.e., current fire severity) is critical information for understanding the subsequent fire effects upon wildlife habitats, water quality, and the timing of runoff. There have been many reports of how fire suppression and timber harvest has affected vegetation patterns, fuels, and fire behavior. The US Forest Service researchers from the Flathead National Forest, derived the current fire severity theme explicitly to compare with the historical fire regime theme to evaluate how fire severity has changed since Euro-American settlement (that is, to derive fire-regime condition class).

#### 4.3.3.2 General Limitations

These data were designed to characterize broad scale patterns of estimated fire severity for use in regional and subregional assessments. Any decisions based on these data should be supported with field verification, especially at scales finer than 1:100,000. Although the resolution of the CFS theme is 90 meter cell size, the expected accuracy does not warrant their use for analyses of areas smaller than about 10,000 acres (for example, assessments that typically require 1:24,000 data).

Current fire severity rule-set was developed for an "average burn day" for the specific vegetation types in our area. Any user of these data should familiarize themselves with the rule sets to better understand our estimate of current fire severity.

**Table 4.11. Predicted Fire Severity by area in Lewis County.**

|    | <b>Predicted Fire Severity</b> | <b>Acres</b> | <b>Percent of Area</b> |
|----|--------------------------------|--------------|------------------------|
| 1  | non-lethal                     | 162          | 0.0%                   |
| 2  | mixed severity, short interval | 12,776       | 3.2%                   |
| 3  | mixed severity, long interval  | 99,421       | 25.1%                  |
| 5  | stand replacement, forest      | 40,764       | 10.3%                  |
| 7  | stand replacement, non-forest  | 32,337       | 8.2%                   |
| 8  | agriculture                    | 191,537      | 48.4%                  |
| 9  | rock/barren                    | 15,278       | 3.9%                   |
| 10 | urban                          | 1,209        | 0.3%                   |
| 11 | water                          | 1,919        | 0.5%                   |
| 13 | no information                 | 318          | 0.1%                   |

See Appendix I for a map of Predicted Fire Severity.

#### 4.3.4 On-Site Evaluations

Fire control and evaluation specialists as well as hazard mitigation consultants evaluated the communities of Lewis County to determine, first-hand, the extent of risk and characteristics of hazardous fuels in the Wildland-Urban Interface. The on-site evaluations have been summarized in written narratives and are accompanied by photographs taken during the site visits. These evaluations included the estimation of fuel models as established by Anderson (1982). These fuel models are described in the following section of this document.

In addition, field personnel completed FEMA's Fire Hazard Severity Forms and Fire Hazard Rating Criteria Worksheets. These worksheets and standardized rating criteria allow comparisons to be made between all of the counties in the country using the same benchmarks. The FEMA rating forms are summarized for each community in Appendix II.

#### 4.3.5 Fuel Model Descriptions

Anderson (1982) developed a categorical guide for determining fuel models to facilitate the linkage between fuels and fire behavior. These 13 fuel models, grouped into 4 basic groups: grass, chaparral and shrub, timber, and slash, provide the basis for communicating fuel conditions and evaluating fire risk. There are a number of ways to estimate fuel models in forest and rangeland conditions. The field personnel from Northwest Management, Inc., that evaluated communities and other areas of Benewah County have all been intricately involved in wildland fire fighting and the incident command system. They made ocular estimates of fuel models they

observed. In an intense evaluation, actual sampling would have been employed to determine fuel models and fuel loading. The estimations presented in this document (Chapter 3) are estimates based on observations to better understand the conditions observed.

**Fuel Model 0-** This type consists of non-flammable sites, such as exposed mineral soil and rock outcrops. Other lands are also identified in this type.

#### **4.3.5.1 Grass Group**

##### **4.3.5.1.1 Fire Behavior Fuel Model 1**

Fire spread is governed by the fine, very porous, and continuous herbaceous fuels that have cured or are nearly cured. Fires are surface fires that move rapidly through the cured grass and associated material. Very little shrub or timber is present, generally less than one-third of the area.

Grasslands and savanna are represented along with stubble, grass-tundra, and grass-shrub combinations that met the above area constraint. Annual and perennial grasses are included in this fuel model.

*This fuel model correlates to 1978 NFDRS fuel models A, L, and S.*

##### **Fuel model values for estimating fire behavior**

|   |      |
|---|------|
| Total fuel load, < 3-inch dead and alive, tons/acre ..... | 0.74 |
| Dead fuel load, 1/4-inch, tons/acre .....                 | 0.74 |
| Live fuel load, foliage, tons/acre .....                  | 0    |
| Fuel bed depth, feet .....                                | 1.0  |

##### **4.3.5.1.2 Fire Behavior Fuel Model 2**

Fire is spread primarily through the fine herbaceous fuels, either curing or dead. These are surface fires where the herbaceous material, in addition to litter and dead-down stemwood from the open shrub or timber overstory, contribute to the fire intensity. Open shrub lands and pine stands or scrub oak stands that cover one-third to two-thirds of the area may generally fit this model; such stands may include clumps of fuels that generate higher intensities than that may produce firebrands. Some pinyon-juniper may be in this model.

*This fuel model correlates to 1978 NFDRS fuel models C and T.*

##### **Fuel model values for estimating fire behavior**

|   |     |
|---|-----|
| Total fuel load, < 3-inch dead and alive, tons/acre ..... | 4.0 |
| Dead fuel load, 1/4-inch, tons/acre .....                 | 2.0 |
| Live fuel load, foliage, tons/acre .....                  | 0.5 |
| Fuel bed depth, feet .....                                | 1.0 |

##### **4.3.5.1.3 Fire Behavior Fuel Model 3**

Fires in this fuel are the most intense of the grass group and display high rates of spread under the influence of wind. Wind may drive fire into the upper heights of the grass and across standing water. Stands are tall, averaging about 3 feet (1 m), but considerable variation may occur. Approximately one-third or more of the stand is considered dead or cured and maintains the fire. Wild or cultivated grains that have not been harvested can be considered similar to tall prairie and marshland grasses.

*This fuel correlates to 1978 NFDRS fuel model N.*

**Fuel model values for estimating fire behavior**

|  |     |
|--|-----|
| Total fuel load, < 3-inch dead and live, tons/acre ..... | 3.0 |
| Dead fuel load, 1/4-inch, tons/acre .....                | 3.0 |
| Live fuel load, foliage tons/acre .....                  | 0   |
| Fuel bed depth, feet .....                               | 2.5 |

**4.3.5.2 Shrub Group**

**4.3.5.2.1 Fire Behavior Fuel Model 4**

Fire intensity and fast-spreading fires involve the foliage and live and dead fine woody material in the crowns of a nearly continuous secondary overstory. Stands of mature shrubs, 6 or more feet tall, such as California mixed chaparral, the high pocosin along the east coast, the pinebarrens of New Jersey, or the closed jack pine stands of the north-central States are typical candidates. Besides flammable foliage, dead woody material in the stands significantly contributes to the fire intensity. Height of stand qualifying for this model depends on local conditions. A deep litter layer may also hamper suppression efforts.

*This fuel model represents 1978 NFDRS fuel models B and O; fire behavior estimates are more severe than obtained by Models B or O.*

**Fuel model values for estimating fire behavior**

|   |      |
|---|------|
| Total fuel load, <3-inch dead and live, tons/acre ..... | 13.0 |
| Dead fuel load, 1/4-inch, tons/acre .....               | 5.0  |
| Live fuel load, foliage, tons/acre .....                | 5.0  |
| Fuel bed depth, feet .....                              | 6.0  |

**4.3.5.2.2 Fire Behavior Fuel Model 5**

Fire is generally carried in the surface fuels that are made up of litter cast by the shrubs and the grasses or forbs in the understory. The fires are generally not very intense because surface fuel loads are light, the shrubs are young with little dead material, and the foliage contains little volatile material. Usually shrubs are short and almost totally cover the area. Young, green stands with no dead wood would qualify: laurel, vine maple, alder, or even chaparral, manzanita, or chamise.

*No 1978 NFDRS fuel model is represented, but model 5 can be considered as second choice for NFDRS model D or as third choice for NFDRS model T. Young green stands may be up to 6 feet (2m ) high but have poor burning properties because of live vegetation.*

**Fuel model values for estimating fire behavior**

|   |     |
|---|-----|
| Total fuel load, <3-inch dead and live, tons/acre ..... | 3.5 |
| Dead fuel load, 1/4-inch, tons/acre .....               | 1.0 |
| Live fuel load, foliage, tons/acre .....                | 2.0 |
| Fuel bed depth, feet .....                              | 2.0 |

**4.3.5.2.3 Fire Behavior Fuel Model 6**

Fires carry through the shrub layer where the foliage is more flammable than fuel model 5, but this requires moderate winds, greater than 8 mi/h (13 km/h) at mid-flame height. Fire will drop to

the ground at low wind speeds or at openings in the stand. The shrubs are older, but not as tall as shrub types of model 4, nor do they contain as much fuel as model 4. A broad range of shrub conditions is covered by this model. Fuel situations to be considered include intermediate stands of chamise, chaparral, oak brush, low pocosin, Alaskan spruce taiga, and shrub tundra. Even hardwood slash that has cured can be considered. Pinyon-juniper shrublands may be represented but may over-predict rate of spread except at high winds, like 20 mi/h (32 km/h) at the 20-foot level.

*The 1978 NFDRS fuel models F and Q are represented by this fuel model. It can be considered a second choice for models T and D and a third choice for model S.*

#### **Fuel model values for estimating fire behavior**

|   |     |
|---|-----|
| Total fuel load, <3-inch dead and live, tons/acres..... | 6.0 |
| Dead fuel load, 1/4 –inch, tons/acre .....              | 1.5 |
| Live fuel load, foliage, tons/acre .....                | 0   |
| Fuel bed depth, feet.....                               | 2.5 |

#### **4.3.5.2.4 Fire Behavior Fuel Model 7**

Fires burn through the surface and shrub strata with equal ease and can occur at higher dead fuel moisture contents because of the flammability of live foliage and other live material. Stands of shrubs are generally between 2 and 6 feet (0.6 and 1.8 m) high. Palmetto-gallberry understory-pine overstory sites are typical and low pocosins may be represented. Black spruce-shrub combinations in Alaska may also be represented.

*This fuel model correlates with 1978 NFDRS model D and can be a second choice for model Q.*

#### **Fuel model values for estimating fire behavior**

|   |     |
|---|-----|
| Total fuel load, <3-inch dead and live, tons/acre ..... | 4.9 |
| Dead fuel load, 1/4-inch, tons/acre .....               | 1.1 |
| Live fuel load, foliage, tons/acre .....                | 0.4 |
| Fuel bed depth, feet.....                               | 2.5 |

#### **4.3.5.3 Timber Group**

##### **4.3.5.3.1 Fire Behavior Fuel Model 8**

Slow-burning ground fires with low flame lengths are generally the case, although the fire may encounter an occasional “jackpot” or heavy fuel concentration that can flare up. Only under severe weather conditions involving high temperatures, low humidities, and high winds do the fuels pose fire hazards. Closed canopy stands of short-needle conifers or hardwoods that have leafed out support fire in the compact litter layer. This layer is mainly needles, leaves, and occasionally twigs because little undergrowth is present in the stand. Representative conifer types are white pine, and lodgepole pine, spruce, fir and larch

*This model can be used for 1978 NFDRS fuel models H and R.*

#### **Fuel model values for estimating fire behavior**

|  |     |
|--|-----|
| Total fuel load, <3-inch, dead and live, tons/acre ..... | 5.0 |
| Dead fuel load, 1/4-inch, tons/acre .....                | 1.5 |
| Live fuel load, foliage, tons/acre .....                 | 0   |
| Fuel bed depth, feet.....                                | 0.2 |

#### 4.3.5.3.2 Fire Behavior Fuel Model 9

Fires run through the surface litter faster than model 8 and have longer flame height. Both long-needle conifer stands and hardwood stands, especially the oak-hickory types, are typical. Fall fires in hardwoods are predictable, but high winds will actually cause higher rates of spread than predicted because of spotting caused by rolling and blowing leaves. Closed stands of long-needled pine like ponderosa, Jeffrey, and red pines, or southern pine plantations are grouped in this model. Concentrations of dead-down woody material will contribute to possible torching out of trees, spotting, and crowning.

*NFDRS fuel models E, P, and U are represented by this model. It is also a second choice for models C and S.*

##### Fuel model values for estimating fire behavior

Total fuel load, <3-inch dead and live, tons/acre ..... 3.5  
Dead fuel load, 1/4-inch, tons/acre ..... 2.9  
Live fuel load, foliage, tons/acre ..... 0  
Fuel bed depth, feet ..... 0.2

#### 4.3.5.3.3 Fire Behavior Fuel Model 10

The fires burn in the surface and ground fuels with greater fire intensity than the other timber litter models. Dead-down fuels include greater quantities of 3-inch (7.6 cm) or larger limb-wood, resulting from over-maturity or natural events that create a large load of dead material on the forest floor. Crowning out, spotting, and torching of individual trees are more frequent in this fuel situation, leading to potential fire control difficulties. Any forest type may be considered if heavy down material is present; examples are insect- or disease-ridden stands, wind-thrown stands, over-mature situations with dead fall, and aged light thinning or partial-cut slash.

*The 1978 NFDRS fuel model G is represented.*

##### Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and live, tons/acre ..... 12.0  
Dead fuel load, 1/4-inch, tons/acre ..... 3.0  
Live fuel load, foliage, tons/acre ..... 2.0  
Fuel bed depth, feet ..... 1.0

The fire intensities and spread rates of these timber litter fuel models are indicated by the following values when the dead fuel moisture content is 8 percent, live fuel moisture is 100 percent, and the effective wind speed at mid-flame height is 5 mi/h (8 km/h):

**Table 4.12. Comparative Fire Intensities and Rates of Spread in Timber Fuel Models.**

| Fuel Model | Rate of Spread | Flame length |
|------------|----------------|--------------|
|            | Chains/hour    | Feet         |
| 8          | 1.6            | 1.0          |
| 9          | 7.5            | 2.6          |
| 10         | 7.9            | 4.8          |

Fires such as above in model 10 are at the upper limit of control by direct attack. More wind or drier conditions could lead to an escaped fire.

#### 4.3.5.4 Logging Slash Group

##### 4.3.5.4.1 Fire Behavior Fuel Model 11

Fires are fairly active in the slash and herbaceous material intermixed with the slash. The spacing of the rather light fuel load, shading from overstory, or the aging of the fine fuels can contribute to limiting the fire potential. Light partial cuts or thinning operations in mixed conifer stands, hardwood stands, and southern pine harvests are considered. Clearcut operations generally produce more slash than represented here. The less-than-3-inch (7.6-cm) material load is less than 12 tons per acre (5.4 t/ha). The greater-than-3-inch (7.6-cm) is represented by not more than 10 pieces, 4 inches (10.2 cm) in diameter, along a 50-foot (15 m) transect.

*The 1978 NFDRS fuel model K is represented by this model.*

##### **Fuel model values for estimating fire behavior**

|   |      |
|---|------|
| Total fuel load, < 3-inch, dead and live, tons/acre ..... | 11.5 |
| Dead fuel load, ¼-inch, tons/acre .....                   | 1.5  |
| Live fuel load, foliage, tons/acre .....                  | 0    |
| Fuel bed depth, feet .....                                | 1.0  |

##### 4.3.5.4.2 Fire Behavior Fuel Model 12

Rapidly spreading fires with high intensities capable of generating firebrands can occur. When fire starts, it is generally sustained until a fuel break or change in fuels is encountered. The visual impression is dominated by slash and much of it is less than 3 inches (7.6 cm) in diameter. The fuels total less than 35 tons per acres (15.6 t/ha) and seem well distributed. Heavily thinned conifer stands, clearcuts, and medium or heavy partial cuts are represented. The material larger than 3 inches (7.6 cm) is represented by encountering 11 pieces, 6 inches (15.3 cm) in diameter, along a 50-foot (15-m) transect.

*This model depicts 1978 NFDRS model J and may overrate slash areas when the needles have dropped and the limbwood has settled. However, in areas where limbwood breakup and general weathering have started, the fire potential can increase.*

##### **Fuel model values fore estimating fire behavior**

|   |      |
|---|------|
| Total fuel load, < 3-inch, dead and live, tons/acre ..... | 34.6 |
| Dead fuel load, ¼-inch, tons/acre .....                   | 4.0  |
| Live fuel load, foliage, tons/acre .....                  | 0    |
| Fuel bed depth, feet .....                                | 2.3  |

##### 4.3.5.4.3 Fire Behavior Fuel Model 13

Fire is generally carried across the area by a continuous layer of slash. Large quantities of material larger than 3 inches (7.6 cm) are present. Fires spread quickly through the fine fuels and intensity builds up more slowly as the large fuels start burning. Active flaming is sustained for long periods and a wide variety of firebrands can be generated. These contribute to spotting problems as the weather conditions become more severe. Clearcuts and heavy partial-cuts in mature and overmature stands are depicted where the slash load is dominated by the greater-than-3-inch (7.6-cm) diameter material. The total load may exceed 200 tons per acre (89.2 t/ha) but fuel less than 3 inches (7.6 cm) is generally only 10 percent of the total load. Situations where the slash still has “red” needles attached but the total load is lighter, more like model 12, can be represented because of the earlier high intensity and quicker area involvement.

### Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and live, tons/acre ..... 58.1  
Dead fuel load, ¼-inch, tons/acre ..... 7.0  
Live fuel load, foliage, tons/acre ..... 0  
Fuel bed depth, feet..... 3.0

### For other slash situations:

Hardwood slash .....Model 6  
Heavy “red” slash.....Model 4  
Overgrown slash.....Model 10  
Southern pine clearcut slash.....Model 12

The comparative rates of spread and flame lengths for the slash models at 8 percent dead fuel moisture content and a 5 mi/h (8 km/h) mid-flame wind are presented in Table 4.13.

**Table 4.13. Comparative Fire Intensities and Rates of Spread in Slash Fuel Models.**

| Fuel Model | Rate of Spread | Flame length |
|------------|----------------|--------------|
|            | Chains/hour    | Feet         |
| 11         | 6.0            | 3.5          |
| 12         | 13.0           | 8.0          |
| 13         | 13.5           | 10.5         |

## 4.4 Lewis County Conditions

Vegetative structure and composition within Lewis County is closely related to elevation, aspect and precipitation. Warm and dry environments characterize the flat, mid elevation plateaus. Intense agricultural development in these areas limits the establishment of woody tree species or other native vegetation. Dry land farming and ranching activities tend to lower fuel accumulations; thus supporting fires that burn rapidly at relatively low intensities. These fuel types are common in central Lewis County, as well as in much the eastern and northern reaches extending towards the breaks of the Clearwater River.

Along the east aspect slopes of the Clearwater River canyon vegetative patterns begin to show a shift toward forested communities dominated by ponderosa pine and Douglas-fir. The southern arm of Lewis County, stretching towards the breaks of the Salmon River, can also be characterized by a ponderosa pine and Douglas-fir vegetative community; however, fuel continuity is broken sporadically by sections of cleared farm or ranch ground, logging activities, and roadways. These forested conditions possess a greater quantity of both dead and down fuels as well as live fuels. Rates of fire spread tend to be lower than those in the grass and croplands, however, intensities can escalate dramatically, especially under the effect of slope and wind. These conditions can lead to control problems and potentially threaten lives, structures and other valued resources.

Much of the steep, dry slopes that rise from the Salmon River, Big Canyon Creek, and Mission Creek canyons that establish many of the Lewis County borders are primarily covered with light bunch and cheat grasses that typically support very fast moving fires. These slopes are characterized by forested draws, saddles, and benches that not only add to fuel build ups, but also channel heat and fumes making direct attack efforts difficult and dangerous for firefighters.

These areas are highly valued for their cultural and scenic qualities. Although there are few homes built directly on the steeper gradients, most structures are located along the upper canyon rims. The juxtaposition of these homes to the high fire risk slopes will continue to challenge the ability to manage wildland fires in the wildland-urban interface.

#### **4.4.1 County-Wide Potential Mitigation Activities**

There are four basic opportunities for reducing the loss of homes and lives to fires. There are many single actions that can be taken, but in general they can be lumped into one of the following categories:

- Prevention
- Education/ Mitigation
- Readiness
- Building Codes

##### **4.4.1.1 Prevention**

The safest, easiest, and most economical way to mitigate unwanted fires is to stop them before they start. Generally, prevention actions attempt to prevent human-caused fires. Campaigns designed to reduce the number and sources of ignitions can be quite effective. Prevention campaigns can take many forms. Traditional “Smokey Bear” type campaigns that spread the message passively through signage can be quite effective. Signs that remind folks of the dangers of careless use of fireworks, burning when windy, and leaving unattended campfires can be quite effective. It’s impossible to say just how effective such efforts actually are, however the low costs associated with posting of a few signs is inconsequential compared to the potential cost of fighting a fire.

Slightly more active prevention techniques may involve mass media, such as radio or the local newspaper. Fire districts in other counties have contributed the reduction in human-caused ignitions by running a weekly “run blotter,” similar to a police blotter, each week in the paper. The blotter briefly describes the runs of the week and is followed by a weekly “tip of the week” to reduce the threat from wildland and structure fires. The federal government has been a champion of prevention, and could provide ideas for such tips. When fire conditions become high, brief public service messages could warn of the hazards of misuse of fire or any other incendiary devise. Such a campaign would require coordination and cooperation with local media outlets. However, the effort is likely to be worth the efforts, costs and risks associated with fighting unwanted fires.

**Fire Reporting:** Fires cannot be suppressed until they are detected and reported. As the number and popularity of cellular phones has increased, expansion of the #FIRE program throughout Idaho may provide an effective means for turning the passing motorist into a detection resource.

**Burn Permits:** The issues associated with debris burning during certain times of the year are difficult to negotiate and enforce. However, there are significant risks associated with the use of fire adjacent to expanses of flammable vegetation under certain scenarios. Fire departments typically observe the State of Idaho Closed fire season between May 20 and October 20. During this time, an individual seeking to conduct an open or any type shall obtain a permit to prescribe the conditions under which the burn can be conducted and the resources that need to be on hand to suppress the fire, from a State of Idaho fire warden. Although this is a state- wide regulation, compliance and enforcement has been variable between fire districts. Tackling this

issue is difficult. Typically, the duty falls to the chief of whichever fire protection district the burning is planned. However, this leads to an increased burden on the fire chiefs, who are already juggling other department obligations with obligations to work and to home. There is also considerable confusion on the part of the public as to when a permit is necessary and the procedure for which to obtain the permit. The best-intentioned citizen may unknowingly break this law for a lack of understanding. Clearly, there is a need to coordinate this process and educate the public on when a permit is needed and the necessary channels to obtain a permit.

#### **4.4.1.2 Education**

Once a fire has started and is moving toward home or other values resource, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home as to whether the home will survive the passing fire front. Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event.

The majority of the uncultivated vegetation in Lewis County is comprised of grass and brush rangeland. Although these fuels are very flammable and can support very fast moving fires, fires in these fuel types tend to be of relatively low intensity. In many cases, homes can easily be protected by following a few simple guidelines that reduce the ignitability of the home. There are multiple programs such as FIREWISE that detail precautions that should be taken in order to reduce the threat to homes, such as clearing cured grass and weeds away from structures and establishing a green zone around the home. However, knowledge is no good unless acted upon. Education needs to be followed up by action. Any education programs should include an implementation plan. Ideally, funds would be made available to financially assist the landowner making the necessary changes to the home.

The survey of the public conducted during the preparation of this WUI Fire Mitigation Plan indicated that approximately 44% of the respondents are interested in participating in this type of activity.

#### **4.4.1.3 Readiness**

Once a fire has started, how much and how large it burns is often dependent on the availability of suppression resources. In most cases, rural fire departments are the first to respond and have the best opportunity to halt the spread of a wildland fire. For many districts, the ability to reach these suppression objectives is largely dependent on the availability of functional resources and trained individuals. Increasing the capacity of departments through funding and equipment acquisition can improve response times and subsequently reduce the potential for resource loss.

In order to assure a quick and efficient response to an event, emergency responders need to know specifically where emergency services are needed. Continued improvement and updating of the rural addressing system is necessary to maximize the effectiveness of a response.

#### **4.4.1.4 Building Codes**

The most effective, all be it contentious, solution to some fire problems is the adoption of building codes in order to assure emergency vehicle access and home construction that does not “invite” a fast and intense house fire. Codes that establish minimum road construction standards and access standards for emergency vehicles are an effective means of assuring public and firefighter safety, as well as increasing the potential for home survivability. County

building inspectors should look to the fire departments in order to assure adequate minimum standards. Fire districts may want to consider apparatus that may be available during mutual aid events in order that the adopted standards meet the access requirements of the majority of suppression resources. In Lewis County, such standards may be drafted in consultation with the Fire Chiefs in order to assure accessibility is possible for all responding resources.

Coupled with this need is the potential to implement a set of requirements or recommendations to specify construction materials allowed for use in high risk areas of the county. While a resident of Nezperce may not put his or her structure at undue risk by the use of wooden decking materials, a shake roof, or wooden siding, the same structure in Winchester would be at tremendous risk through this practice. The Lewis County Commissioners may want to consider a policy for dealing with this situation into the future as more and more homes are located in the wildland-urban interface.

## 4.5 Lewis County's Wildland-Urban Interface

Individual community assessments have been completed for all of the populated places in the county. The following summaries include these descriptions and observations. Local place names identified during this plan's development include:

**Table 4.14. Lewis County Communities.**

| Community Name | Planning Description | Vegetative Community    | National Register Community At Risk? <sup>1</sup> |
|----------------|----------------------|-------------------------|---|
| Craigmont      | Community            | Rangeland / Agriculture | Yes   |
| Forest         | Community            | Rangeland/Forestland    | No  |
| Kamiah         | Community            | Forestland              | Yes   |
| Mohler         | Community            | Rangeland / Agriculture | Yes   |
| Morrow         | Community            | Rangeland / Agriculture | No  |
| Nezperce       | Community            | Rangeland / Agriculture | Yes   |
| Reubens        | Community            | Rangeland / Agriculture | Yes   |
| Winchester     | Community            | Rangeland/Forestland    | Yes   |

<sup>1</sup>Those communities with a "Yes" in the National Register Community at Risk column are included in the Federal Register, Vol. 66, Number 160, Friday, August 17, 2001, as "Urban Wildland Interface Communities within the vicinity of Federal Lands that are at high risk from wildfires". All of these communities have been evaluated as part of this plan's assessment.

Site evaluations on these communities are included in subsequent sections. The results of FEMA Hazard Severity Forms for each community are presented in Appendix II.

### 4.5.1 Mitigation Activities Applicable to all Communities

#### 4.5.1.1 Homesite Evaluations and Creation of Defensible Space

Individual homesite evaluations can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Current management of the vegetation surrounding homes provides good protection; however, maintaining a lean, clean, green zone within 100 feet of structures to reduce the potential loss of life and property is recommended.

Assessing individual homes in the outlying areas can address the issue of escape routes and home defensibility characteristics. Educating the homeowners in techniques for protecting their homes is critical in these hot, dry environments.

#### **4.5.1.2 Travel Corridor Fire Breaks**

Ignition points are likely to continue to be concentrated along the roads and railway lines that run through the county. These travel routes have historically served as the primary source of human-caused ignitions, particularly along U.S. Highway 95. In areas with high concentrations of resource values along these corridors, plow or disk lines may be considered in order to provide a fire break in the event of a roadside ignition. Passage with a disk parallel to an access route can provide an adequate control line under normal fire conditions. Alternatively, permanent fuel breaks can be established in order to reduce the potential for ignitions originating from the highway to spread into the surrounding lands.

#### **4.5.1.3 Power Line Corridor Fire Breaks**

The treatment opportunities specified for travel corridor fire breaks apply equally for power line corridors. The obvious difference between the two is that the focus area is not an area parallel to and adjacent to the road, but instead focuses on the area immediately below the infrastructure element. Fuel reduction projects under the high tension power lines are strongly recommended.

### **4.6 Communities in Lewis County**

Communities of Craigmont, Forest, Kamiah, Nezperce, Reubens, and Winchester.

#### **4.6.1 Vegetative Associations**

These communities lie in the vegetative ecosystem known as the "Palouse Prairie" community. The Palouse Prairie Bioregion is widespread over much of eastern Washington, northern Idaho, and western Montana. These areas are typically characterized by rolling hills, deep soils, and a mild climate. One hundred fifty years ago the typical vegetation consisted of perennial bunchgrasses, which grew in tufts or clumps, accompanied by many different kinds of "wildflowers." Together, the grasses and flowers gave the appearance (in spring and early summer at least) of a lush meadow. This type of vegetation occurs in relatively moist environments, where the climate is almost wet enough to support the growth of trees. The principal bunchgrasses were Idaho fescue, bluebunch wheatgrass, and prairie junegrass. Short shrubs, especially snowberry and wild rose, were common. Mosses and lichens were an important but inconspicuous feature.

Agricultural practices surrounding most communities within Lewis County have created a patchwork of green, lush vegetation and cured rangeland. This patchwork helps to break the continuity of fuels that are available to burn. This pattern is particularly apparent around Craigmont and Nezperce. Cultivation has also broken fuel continuity in areas surrounding Winchester, Reubens, and Forest.

Before the development of agriculture and other land uses, the Palouse Prairie Bioregion had a rich fire history, with relatively frequent fires. The last decade has seen the increase in the occurrence of Cheatgrass (*Bromus tectorum* L.), an exotic grass species that is able to out-compete native bunchgrasses. Cheatgrass responds well to soil disturbance and is found in abundance along roadsides, driveways, new construction areas, and in recently burned areas.

Over time, vegetative species composition in unmanaged land has shifted toward fire prone species, particularly in high use areas where disturbance is common.

## **4.6.2 Overall Fuels Assessment**

Fuels throughout the entire prairie community in Lewis County are fairly consistent, dominated by grasslands or cultivated fields. Areas dominated by grass can be described as Fuel Models 1 and 3 (FM1 and FM3). Fires in these fuel types tend to spread rapidly, but burn at relatively low intensity. Wild or cultivated grains that have not been harvested can burn more intensely, especially under severe weather conditions. Where grasses become less consistent, wind is needed to push fires through the bunchgrass. Timber dominated fuel complexes can be described as FM2 or FM8. Open ponderosa pine and Douglas-fir stands characterize FM2 and typically support low to moderate intensity surface fires; however, jackpotting in denser clumps may result in torching of individual trees or produce firebrands. Surface fuel accumulations in FM8 forest fuel types are generally denser than in FM2, which leads to more intense, slow burning surface fires. Under severe weather conditions, this fuel type could support very intense ground and surface fires or crown fires. Frequent jackpotting, spotting, and torching of individual trees is common.

**Community Assessments:** The majority of homes and structures within and surrounding communities on the Camas Prairie are at low to moderate risk of loss to wildland fire. The prevalence of grasses and agricultural crops pose a low threat to homes surrounded by these fuels, as fire typically spreads quickly and burns at relatively low intensities. However, there are a number of individual homes that are at much higher risk to wildland fire loss in the area largely due to use of highly ignitable materials in home construction, location of the home on a steep slope or within heavy fuels, and the lack of defensible space surrounding the home. Home defensibility practices can dramatically increase the probability of home survivability. The amount of fuel modification necessary will depend on the specific attributes of the site. Considering the high spread rates typical in these fuel types, homes need to be protected prior to fire ignitions, as there is little time to defend a home in advance of a grass and range fire.

## **4.6.3 Individual Community Assessments**

### **4.6.3.1 Craigmont**

Craigmont is located on the Camas Prairie between Winchester and Ferdinand and is completely encompassed by the Nez Perce Indian Reservation. Agricultural fields surround the city center and extend for several miles in all directions. This area is almost entirely privately owned and there are very few trees and little native prairie grasslands dotting the landscape. U.S. Highway 95 travels along the southern edge of the community and is the main method of transporting the grains, canola, peas, and other crops that are grown in the area to markets.

#### **4.6.3.1.1 Wildfire Potential**

##### *Fuels Assessment*

There is very little native vegetation remaining near Craigmont. The native Camas Prairie plant community has been almost exclusively replaced by agriculture and pasture lands. A few patches of native species, such as big bluestem, blue camas, shooting star, and lupines, can be found sporadically along fence lines or in un-tillable corners. The remnant prairie grasslands historically burned at relatively frequent intervals, but generally were lower intensity fires. The agricultural fields currently dominating the landscape become very dry during the summer

months. These cured grasses can be very flammable, especially under extreme weather conditions, such as drought or wind. In the event of an uncontrolled wildfire, these light fuels would tend to support very fast moving, yet lower intensity fires. However, modification of the vegetation around structures can be done quickly with available farm equipment and is usually effective in controlling wildfire.

#### *Ignition Profile*

Although lightning events are common in Lewis County, the community of Craigmont is more prone to man-caused ignitions than lightning strikes due to the flat topography and agricultural development. Annual field burning, debris fires, and vehicle use are much more common ignition sources. Stubble fires seldom escape landowner's boundaries; however, the IDL responds to a few each year. These fires are generally easily suppressed by modifying the vegetation and homes are rarely threatened.

Vehicle use on- and off-road is also a potential source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires are also started by vehicles driving through dry fields or on unimproved trails. Grain trucks, ATV's, and pick ups are used regularly in farming operations.

#### **4.6.3.1.2 Ingress-Egress**

The primary access into the Craigmont community center is via U.S. Highway 95, the main route connecting north and south Idaho. This roadway is well-traveled not only by area commuters, but also by intra- and interstate travelers. Most of U.S. 95 through Lewis County is adjacent to relatively flat agriculture fields; however, the Winchester Grade portion, which scales the Lapwai Creek canyon, is bordered by steep, timbered slopes. The fire potential on these dry slopes was recently demonstrated by a wildfire that caused severe tree mortality and cut off this access route for a significant period of time.

Other access routes, including State Highway 62, the Nezperce-Craigmont Shortcut Road, and the Powerline Road, are located in areas that have been intensively developed for agricultural purposes and are generally at low risk of wildfire.

#### **4.6.3.1.3 Infrastructure**

Residents in Craigmont are either connected to a municipal well or have drilled personal wells. Most farmers in this area do not irrigate, so supplementary wells for agricultural purposes are not usually necessary; however, some ranchers use surface runoff or small springs to provide water for livestock. These water resources would not likely be seriously affected by a rangeland fire.

The Grangeville Line of the Camas Prairie Railroad traveling from Spalding through Craigmont to Grangeville is currently inactive. This line historically transported grain, lumber, fertilizer, and other products to and from Camas Prairie markets.

High tension power lines run just north of the community of Craigmont along Cold Springs Road and Powerline Road. These and the other public transmission lines strung to homes throughout the area are at low risk of causing a wildfire due to the agricultural development. Nevertheless, under severe wind conditions or in the event of a downed line, there is some potential for ignition.

#### **4.6.3.1.4 Fire Protection**

The Craigmont Volunteer Fire Department provides structural fire protection for the community of Craigmont. Additionally, the Idaho Department of Lands, Craig Mountain District and the Nez Perce Tribe provide wildland fire protection.

#### **4.6.3.1.5 Community Risk Assessment**

Residents in the Craigmont area have low risk of experiencing a wildland fire due to the extensive agricultural development. Nevertheless, in the event of wildfire, the light fuels would likely support a very fast-moving rangeland fire. Therefore, it is imperative that homeowners implement fire mitigation measures to protect their structures and families prior to such an event.

The primary fire risk is associated with the abundance of human activity and the use of machinery near dry, flashy fuels. The receptive nature of these fuels increases the likelihood of a fire start. Most homeowners maintain an adequate defensible space around structures by watering their yards or mowing grass and weeds.

#### **4.6.3.1.6 Mitigation Activities**

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Lewis County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. "Living with Fire, A Guide for the Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles.

#### **4.6.3.2 Forest**

The small community of Forest is located approximately 6 miles south of Winchester and about 1 mile south of the Nez Perce Indian Reservation boundary. There are only a few actual residents living near the townsite; however, there are many landowners scattered throughout the area, many using the area on weekends. Except for a small strip of timber, the area east of the community center has been developed for agricultural purposes. Patchy timber with sporadic farms and pastureland characterize the area to the north, while much of the lands to the east and south are dominated by more continuous forest stands.

##### **4.6.3.2.1 Wildfire Potential**

###### *Fuels Assessment*

Many homes near the Forest townsite have some defensible space around structures in the form of pasture for livestock or small farm fields. A fire start in a field or pasture can generally be quickly controlled by modifying vegetation and creating fuel breaks. Nevertheless, fires in this

type of light, flashy fuels will tend to spread very rapidly leaving little time to effectively protect structures.

The Salmon River breaks in Lewis County are characterized by extremely dry south to southeast aspects. Low growing grasses dominant on these slopes cure early in the summer becoming exceedingly prone to ignition. Fires in these fuels tend to be very rapidly spreading, but burn at low to moderate intensities. This fuel type is very flashy and easily influenced by weather patterns making suppression efforts difficult and potentially dangerous for firefighters. Strips of timber located in some of the cooler draws can burn very intensely, throwing fire brands and creating rolling embers that ignite spot fires.

The timbered areas south and east of Forest and extending to the river breaks are typically drier habitat types dominated by ponderosa pine, lodgepole pine, Douglas-fir, and western larch. Historically, the understories of these stands were relatively open; maintained by periodic, low intensity surface fires. Years of fire suppression has led to more overcrowded conditions with dense accumulations of dead and down wood and other surface fuels. Additionally, regeneration has begun to encroach on many naturally open meadows. Enhanced vertical and horizontal fuel continuity can lead to larger fires with increased occurrences of crowning and torching. These hazardous fuel complexes coupled with dry summers and numerous ignition sources significantly increase the probability of an intense and destructive wildfire.

#### *Ignition Profile*

Both natural and man-caused fires occur in this area. The high density of recreational use at Soldier's Meadow Reservoir west of Forest and in the timber land to the south increase potential ignition sources significantly. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area. Contact between power lines and trees can also spark fires, especially during windy conditions.

Lightning events are common across Lewis County; however, ignitions due to downstrikes occur more frequently on the river breaks. The Maloney Creek Fire of 2000 was started by a lightning strike in the Maloney Creek drainage near the Salmon River just south of Forest. This fire burned a large portion of the southern arm of Lewis County and neighboring Nez Perce County (74,500 acres). The cured grasses that cover the steep slopes of the Salmon River breaks and the dry forest habitat types that dominate much of the area south and west of Forest are very receptive to ignition.

The abundance of human and natural ignition sources and the dry nature of fuels in the area increase the probability of wildland fire. Fire characteristics will depend on fuel types and moisture levels, as well as on weather conditions at the time of ignition. Fires during periods of drought with high temperatures, low humidity and strong winds can quickly lead to fast-moving, destructive wildfires regardless of whether the event occurs in forest or rangeland fuels.

#### **4.6.3.2.2 Ingress-Egress**

Access into Forest is limited to graveled secondary roads. The most traveled of which is Forest Road from Winchester. This route is bordered primarily by agricultural or pasture land, but a few sections pass through patches of light timber. Many of the forest stands along the roadway have been thinned with most of the slash removed; thus, reducing fuel accumulations and consequently the fire hazard.

Two other potential escape routes are Morrowtown Road from the east and Soldier's Meadow Road from the west. Morrowtown Road has low fire risk due to agricultural development.

Soldier's Meadow Road is one of only two access routes into Soldier's Meadow Reservoir. This roadway has much higher fire risk due to the increased recreational traffic and being adjacent to forest stands. Sections of these forests were thinned in order to provide a fuel break during the Maloney Creek Fire of 2000. Many of these stands are now being actively managed as part of a private forest health improvement project.

#### **4.6.3.2.3 Infrastructure**

The community of Forest is not large enough to necessitate a city water system, so residents rely on personal or multiple home wells for water. These water resources would not likely be seriously affected by a wildland fire, unless power to run the pumps is lost.

#### **4.6.3.2.4 Fire Protection**

The community of Forest currently has no formal structural fire protection; however, the Idaho Department of Lands, Craig Mountain District and the Nez Perce Tribe provide wildland fire protection.

#### **4.6.3.2.5 Community Risk Assessment**

The community of Forest has moderate to high risk of experiencing a wildland fire, which has been recently demonstrated by the 2000 Maloney Creek Fire. Those homes with timber directly abutting or overhanging structures are at the highest risk. Fires in these timber fuel types are generally much more intense and difficult to control than rangeland fires. Additionally, the abundance of recreational and other human activities in the area drastically increase potential ignition sources. Preparing a home prior to a wildfire event will significantly increase its chance of survival.

Due to the lack of a localized fire protection service and the rural nature of the community, response time for emergency equipment from other communities or agencies will be considerable. Therefore, it is even more important for homeowners to implement fuel reduction projects and other fire mitigation efforts.

#### **4.6.3.2.6 Mitigation Activities**

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Lewis County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward a structure or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. "Living with Fire, A Guide for the Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space. Residents of Forest and the surrounding area should be encouraged to work with local fire departments and fire management agencies within the county to complete individual homesite evaluations. Home defensibility steps should be enacted based on the results of these evaluations.

The creation of a new fire district to protect residents of Forest would be a first step in mitigating wildland fire risk to the area. This should be a priority in the overall County Fire Mitigation Plan. In the absence of fire protection, homeowners need to take additional precautions in order to increase the defensibility of their homes and to provide safe travel routes.

Other specific mitigation activities are likely to include improvement of emergency water supplies and management of trees and vegetation along roads and power line right-of-ways.

Furthermore, building codes should be revised to provide for more fire conscious construction techniques such as using fire resistant siding, roofing, and decking.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, home survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles.

The fuels abatement work that has already been completed or is in the process of being completed on private lands surrounding the community will need to be maintained into the future. Forests are dynamic and ever changing. A program of monitoring and tending designed to maintain favorable conditions should be initiated and continued over the long term.

#### **4.6.3.3 Kamiah**

Kamiah is located within the Nez Perce Indian Reservation at the junction of U.S. Highway 12 and State Highways 162 and 64 approximately 7 miles north of Kooskia. Most of the businesses and infrastructure associated with the community is on the western bank of the Clearwater River, which is part of Lewis County. However, there are several homes and businesses that sit on the eastern bank, which is part of Idaho County. As Kamiah grows, more and more homes are being built along the steep slopes of the river canyon. The economy in this part of the County is more focused on the lumber and tourism industries than agriculture.

##### **4.6.3.3.1 Fire Potential**

###### *Fuels Assessment*

The Lewis County portion of Kamiah sits at the base of the east aspect slope that defines the Clearwater River canyon. This slope is characterized by very patchy timber intermixed with grasslands. Drier habitat species such as ponderosa pine and Douglas-fir grow in fairly open stands on this steep slope. Fires in this fuel type were historically frequent, but generally burned at low to moderate intensities. Fire suppression over the past few decades has led to increased brush, regeneration, and other surface fuels in the understory, which can lead to more intense fires. Torching, crowning, and spot fires tend to occur more frequently under these conditions.

The timber component of the system becomes much more continuous to the north, but transitions to a grassland habitat to the south. Lawyer Creek, which defines the southern border of Lewis County, drains into the Clearwater River at the south end of Kamiah. The steep, south aspect slope of the deep canyon created by this tributary is dominated by lower growing grass species with very few trees or shrubs. Fires in these grassland ecosystems cure early in the summer and become increasingly prone to ignition.

###### *Ignition Profile*

Both natural and man-caused fires occur in this area. The high density of recreational and industrial activity near the river and the intense use of mechanized equipment for farming and logging increase potential ignition sources significantly. The use of equipment near cured grasses sparked the 2003 Milepost 59 Fire, which burned over 8,000 acres in the Clearwater River canyon 5 miles north of Kamiah. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area. Contact between power lines and trees can also spark fires, especially during windy conditions. The occurrence of arson fires each year is rising, most

notably on the Highway 64 Grade. So far, local fire emergency resources have controlled these fires before they caused serious damage and threatened lives or property.

Lightning events are common across Lewis County; however, ignitions due to down strikes occur more frequently on the river breaks. The cured grasses that cover the steep slopes of the Clearwater River canyon and the dry forest habitat types that dominate much of the area surrounding Kamiah are very receptive to ignition.

The abundance of human and natural ignition sources and the dry nature of fuels in the area increase the probability of wildland fire. Fire characteristics will depend on fuel types and moisture levels, as well as on weather conditions at the time of ignition. Fires during periods of drought with high temperatures, low humidity and strong winds can quickly lead to fast-moving, destructive wildfires regardless of whether the event occurs in forest or rangeland fuels.

#### **4.6.3.3.2 Ingress-Egress**

The primary access into Kamiah is by U.S. Highway 12, part of the Lewis and Clark Trail. This two lane highway follows the path of the Clearwater River and can be very narrow and windy. State Highway 162 enters Kamiah from the southwest and is also a narrow two lane highway that provides the quickest route from the Camas Prairie. Both Highway 12 and 162 could function as escape routes; however, it is possible that one or both would become impassable in the event of a fire. Sections of these roadways abut timber-type fuels and steep slopes. The Clearwater River canyon near Kamiah is narrow enough in some places that a fire on either side could shut down Highway 12 due to extreme heat and fumes. If both routes are disabled, there are several secondary roads on the Idaho County side of the river that could function as escape routes including Woodland Road and Tom Taha Road.

State Highway 64, also known as the Kamiah-Nez Perce Grade, is a very narrow and windy, primarily gravel, single lane road that climbs the steep canyon wall to the Camas Prairie above. This is not an adequate escape route. Not only does it lack suitable turnouts and guard rails, but there is also a history of ignitions along the roadway.

#### **4.6.3.3.3 Infrastructure**

Kamiah has both a municipal surface water system and ground water sources. Landowners outside of the city water district are generally supplied by personal or multiple home wells. The Kamiah Watershed could potentially be negatively impacted by a wildfire event; however, ground water sources would not likely be affected by a wildfire event.

High tension power lines run along the southwestern side of the community. Sections of these transmission lines cross over forest ecosystems. These lines have a moderate potential of sparking an ignition, particularly during severe wind events. Efforts should be made to insure power line corridors are kept clear of fuels.

One of the key components of the economy in Kamiah is the existence of Three Rivers Timber, Inc. and a few smaller sawmills. The wood products industry has been one of the chief employers in this area for many decades. The loss of productive timber ground as a result of a large wildfire may affect these mill's ability to continue operating efficiently, especially in today's shrinking log markets.

The First Subdivision of the Camas Prairie Railroad still transports logs and a few other products between Kamiah and Lewiston. The track mimics the path of the Clearwater River along its eastern bank. Although it is slightly outside of Lewis County's borders, it heavily

influences Kamiah's economy. There has been no recent fire starts due to the passage of the train, yet the potential of ignition from sparks or hot brake shoes exists.

Tourism is also an important component of Kamiah's economy. Travelers seeking adventure along the Lewis and Clark Trail pass through Kamiah on U.S. 12. Lodging, dining, and other recreational facilities have become relatively dependent on the flow of travelers during the warmer months. Restricted access due to wildfires may negatively effect this cash flow.

#### **4.6.3.3.4 Fire Protection**

Structural fire protection is provided to Kamiah and the surrounding areas by the Kamiah Volunteer Fire Department. The Idaho Department of Lands - Maggie Creek District, USDA Forest Service, and the Nez Perce Tribe offer wildland fire protection.

#### **4.6.3.3.5 Community Assessment**

The community of Kamiah is at moderate to high risk of experiencing a wildland fire, which has been recently demonstrated by the 2003 Milepost 59 Fire. Homes built on steep slopes or with timber directly abutting or overhanging structures are at the highest risk. Fires in these timber fuel types are generally much more intense and difficult to control than rangeland fires. Dry grasses on the steep slopes rising from the community center would support very rapidly spreading wildfires, leaving little time for residents to escape. Additionally, the abundance of recreational and other human activities in the area drastically increase potential ignition sources. Preparing a home prior to a wildfire event will significantly increase its chance of survival.

The location of the townsite in the bottom of a narrow canyon exacerbates already hazardous landscape characteristics. A fire on either side of the river would funnel hot gases and fumes through the canyon. Intense heat, sparks, or fire brands could easily light the opposite side; thus, compounding the threat. Additionally, there are only a few safe escape routes available to residents.

#### **4.6.3.3.6 Mitigation Activities**

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Lewis County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward a structure or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. "Living with Fire, A Guide for the Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space. Residents of Kamiah and the surrounding area should be encouraged to work with local fire departments and fire management agencies within the county to complete individual homesite evaluations and construct home defensible areas. Home defensibility steps should be enacted based on the results of these evaluations.

Development of a community evacuation plan is necessary to assure an orderly evacuation in the event of a threatening wildland fire. Designation and posting of escape route signage would reduce chaos and escape times for fleeing residents. A community safety zone should also be established in the event of compromised evacuation. Efforts should be made to educate homeowners through existing homeowners associations or creation of such organizations to act as conduits for this information.

Other specific mitigation activities are likely to include improvement of emergency water supplies and management of trees and vegetation along roads and power line right-of-ways. Furthermore, building codes should be revised to provide for more fire conscious construction techniques such as using fire resistant siding, roofing, and decking.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles.

Recreational facilities near the community and along the Clearwater River corridor should be kept clean and maintained. In order to mitigate the risk of an escaped campfire, escape proof fire rings and barbeque pits should be installed and maintained. Surface fuel accumulations in nearby forests can also be kept to a minimum by periodically conducting controlled burns. Other actions that would reduce the fire hazard would be thinning and pruning timbered areas, creating a fire resistant buffer along roads and power line corridors, and strictly enforcing fire-use regulations.

#### **4.6.3.4 Nezperce**

Nezperce is located on the Camas Prairie between Craigmont and Kamiah and is completely within the Nez Perce Indian Reservation. Agricultural fields surround the city center and extend for several miles in all directions. This area is almost entirely privately owned and there are very few trees and little native prairie grasslands dotting the relatively even landscape. U.S. Routes 62, 64, and 162 intersect in Nezperce and are the main method of transporting the grains, canola, peas, and other crops that are grown in the area.

##### **4.6.3.4.1 Fire Potential**

###### *Fuels Assessment*

There is very little native vegetation remaining near Nezperce. The native Camas Prairie plant community has been almost exclusively replaced by agriculture and pasture lands. A few patches of native species, such as big bluestem, blue camas, shooting star, and lupines, can be found sporadically along fencelines or in untillable corners. The prairie grasslands historically burned at relatively frequent intervals, but generally were lower intensity fires. The agricultural fields currently dominating the landscape become very dry during the summer months. These cured grasses can be very flammable, especially under extreme weather conditions, such as drought or wind. In the event of an uncontrolled wildfire, these light fuels would tend to support very fast moving, yet lower intensity fires. However, modification of the vegetation around structures can be done quickly with available farm equipment and is usually effective in controlling wildfire.

###### *Ignition Profile*

Although lightning events are common in Lewis County, the community of Nezperce is more prone to man-caused ignitions than lightning strikes due to the flat topography and agricultural development. Annual field burning, debris fires, and vehicle use are much more common ignition sources. Stubble fires seldom escape agricultural boundaries; however, the IDL responds to a few each year. These fires are generally easily suppressed by modifying the vegetation; homes are rarely threatened.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires are also commonly started by vehicles driving through dry fields or on unimproved trails. Grain trucks, ATV's, and pick ups are used regularly in farming operations.

#### **4.6.3.4.2 Ingress-Egress**

The two primary access routes into Nezperce are State Highway 62 and 162. These are both two lane, paved routes. Highway 62 is the fastest route to Craigmont, while 162 heads south through Lawyer canyon to Grangeville. State Route 64 and the Russell Ridge Road both provide access to the Clearwater River canyon; however, these roads are too steep, narrow, and dangerous to serve as identified escape routes. There are several other good escape routes that extend from the community in all directions. These are typically one lane gravel roads; however, they are wide and stable enough to support large truck travel. All of these potentially escape routes are adjacent to either farm or pasture ground; thus, they have a low risk of becoming threatened in the event of a fire.

#### **4.6.3.4.3 Infrastructure**

There are two municipal wells providing residents of Nezperce with water resources. Landowners outside of the city limits rely on personal or multiple home wells. Additionally, most farmers in this area do not irrigate, so supplementary wells for agricultural purposes are not usually necessary; however, some ranchers use surface runoff or small springs to provide water for livestock. These water resources would not likely be seriously affected by a rangeland fire.

The railway from Nezperce to Craigmont is currently inactive. This line historically connected Nezperce to the Camas Prairie Line, which transported grain, lumber, fertilizer, and other products to and from Camas Prairie markets.

#### **4.6.3.4.4 Fire Protection**

Structural fire protection is provided to Nezperce and the surrounding areas by the Nezperce Volunteer Fire Department. The Idaho Department of Lands and the Nez Perce Tribe offer wildland fire protection.

#### **4.6.3.4.5 Community Assessment**

Residents in the Nezperce area have low risk of experiencing a wildland fire due to the extensive agricultural development. Nevertheless, in the event of wildfire, the light fuels would likely support a very fast-moving rangeland fire. Therefore, it is imperative that homeowners implement fire mitigation measures to protect their structures and families prior to such an event.

The primary fire risk is associated with the abundance of human activity and the use of machinery near dry, flashy fuels. The receptive nature of these fuels increases the likelihood of a fire start. Most homeowners maintain an adequate defensible space around structures by watering their yards or mowing grass and weeds.

#### **4.6.3.4.6 Mitigation Activities**

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Lewis

County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward a structure or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. “Living with Fire, A Guide for the Homeowner” is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space. Residents of Nezperce and the surrounding area should be encouraged to work with local fire departments and fire management agencies within the county to complete individual homesite evaluations. Home defensibility steps should be enacted based on the results of these evaluations.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or creating a stable surface for turning around large vehicles.

#### **4.6.3.5 Reubens**

Reubens is a small farming community located near the Nez Perce – Lewis County border on Reubens Road. Big Canyon lies to the east of the community center and Lapwai Creek canyon is to the west. The area in-between is characterized by gently rolling hills that have been extensively developed for agricultural use. However, there is scattered timber along Reubens Road and in nearby canyons. Reubens is within the Nez Perce Indian Reservation on the most northern fringes of the Camas Prairie.

##### **4.6.3.5.1 Fire Potential**

###### *Fuels Assessment*

Many homes near Reubens have a large defensible space around structures in the form of pasture for livestock or farm fields. A fire start in a field or pasture can generally be quickly controlled by modifying vegetation and creating fuel breaks. Nevertheless, fires in this type of light, flashy fuels will tend to spread very rapidly leaving little time to effectively protect structures.

The slopes of Big Canyon and the Lapwai Creek canyon are characterized by dry east and west aspects. Low growing grasses on these slopes cure early in the summer becoming exceedingly prone to ignition. The timbered areas along County Route P3 and in the canyons are typically drier habitat types dominated by ponderosa pine, Douglas-fir, and some western larch and grand fir. Historically, the understories of these stands were relatively open; maintained by periodic, low intensity surface fires. Years of fire suppression has led to more overcrowded conditions with dense accumulations of dead and down wood and other surface fuels. Additionally, regeneration has begun to encroach on many naturally open meadows. Enhanced vertical and horizontal fuel continuity can lead to larger fires with increased occurrences of crowning and torching. These hazardous fuel complexes coupled with dry summers and numerous ignition sources significantly increase the probability of an intense and destructive wildfire.

###### *Ignition Profile*

Both natural and man-caused fires occur in this area. The use of mechanized equipment near dry fuels is very common, yet this activity has a high potential of sparking a fire. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are

just a few of the countless potential human ignition sources in the area. Contact between power lines and trees can also spark fires, especially during windy conditions.

Lightning events are common across Lewis County; however, ignitions due to downstrikes occur more frequently on breaks of the canyons. The cured grasses and dry forest habitat types that cover the steep slopes of the canyonlands to the east and west of Reubens are very receptive to ignition.

The abundance of human and natural ignition sources and the dry nature of fuels in the area increase the probability of wildland fire. Fire characteristics will depend on fuel types and moisture levels, as well as on weather conditions at the time of ignition. Fires during periods of drought with high temperatures, low humidity and strong winds can quickly lead to fast-moving, destructive wildfires regardless of whether the event occurs in forest or rangeland fuels.

#### **4.6.3.5.2 Ingress-Egress**

County Route P3 is the primary access into Reubens from either Lewis County or Nez Perce County. This is a paved two lane road that provides a connection from Highway 95 on the Camas Prairie to Highway 12 along the Clearwater River. Most of this roadway travels through areas that are at low risk of wildland fire; however, there are a few areas that may be at somewhat higher risk due to light surface fuels or steeper topography. Timber fuels along P3 from Reubens to Highway 95 have been cut to create a fire resistant buffer for the road and the powerline corridor.

There are also several gravel roads that could provide additional escape routes from the community if necessary. These routes are typically located in low fire risk areas.

#### **4.6.3.5.3 Infrastructure**

Residents of Reubens access water via two municipal wells. Landowners outside the city limits rely on personal or multiple home wells. These ground water sources would not likely be affected by wildland fire.

High tension power lines are located to the southwest of the community in addition to public transmission lines that run along the Reubens Road and homes throughout the area. Corridors for these power lines have been cut in forested areas; however, it is imperative that these low risk buffer zones are maintained periodically.

The Grangeville Line of the Camas Prairie Railroad traveling from Spalding through Reubens to Grangeville is currently inactive. This line historically transported grain, lumber, fertilizer, and other products to and from Camas Prairie markets.

#### **4.6.3.5.4 Fire Protection**

There is currently no structural fire protection available in Reubens; however, the Idaho Department of Lands, Craig Mountain District and the Nez Perce Tribe provide wildland fire protection.

#### **4.6.3.5.5 Community Assessment**

The community of Reubens has moderate risk of experiencing a wildland fire. Most homes in this area are surrounded by crops or pastureland, which serves as a defensible space. However, those homes with timber directly abutting or overhanging structures are at much higher risk. Fires in these timber fuel types are generally much more intense and difficult to

control than rangeland fires. Additionally, the use of farm and logging equipment and other human activities in the area drastically increase potential ignition sources. Preparing a home prior to a wildfire event will significantly increase its chance of survival.

Due to the lack of a localized fire protection service and the rural nature of the community, response time for emergency equipment from other communities or agencies will be considerable. Therefore, it is even more important for homeowners to implement fuel reduction projects and other fire mitigation efforts.

#### **4.6.3.5.6 Mitigation Activities**

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Lewis County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward a structure or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. "Living with Fire, A Guide for the Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space. Residents of Reubens and the surrounding area should be encouraged to work with local fire departments and fire management agencies within the county to complete individual homesite evaluations. Home defensibility steps should be enacted based on the results of these evaluations.

The creation of a new fire district that includes residents of Reubens would be a first step in mitigating wildland fire risk to the area. This should be a priority in the overall County Fire Mitigation Plan. In the absence of fire protection, homeowners need to take additional precautions in order to increase the defensibility of their homes and to provide safe travel routes.

Other specific mitigation activities are likely to include improvement of emergency water supplies and management of trees and vegetation along roads and power line right-of-ways. Furthermore, building codes should be revised to provide for more fire conscious construction techniques such as using fire resistant siding, roofing, and decking.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles.

The fuels abatement work that has already been completed or is in the process of being completed along County Route P3 will need to be maintained into the future. Forests are dynamic and ever changing. A program of monitoring and tending designed to maintain favorable conditions should be initiated and continued over the long term.

#### **4.6.3.6 Winchester**

Winchester is located along U.S. Highway 95 at the top of the Winchester Grade. Farming is a large part of the economy, but tourism also contributes. The Winchester Lake State Park just south of town draws numerous recreators all throughout the year. This reservoir is a popular fishing, hiking, picnicking, and camping destination. Although much of the area has been developed for agricultural purposes, there is still forestland around the State Park and to the east and south of the community center. Winchester and the surrounding area is encompassed by the Nez Perce Indian Reservation. Mud Springs Reservoir and another small lake nearby are

owned and managed by the tribe. Tribal members frequent these areas for spiritual and recreational purposes.

#### **4.6.3.6.1 Fire Potential**

##### *Fuels Assessment*

Many homes near Winchester have some defensible space around structures in the form of pasture for livestock or small farm fields. A fire start in a field or pasture can generally be quickly controlled by modifying vegetation and creating fuel breaks. Nevertheless, fires in this type of light, flashy fuels will tend to spread very rapidly leaving little time to effectively protect structures. CRP fields that are overgrown with tall grasses and other vegetation may support higher fire intensities than cultivated or grazed areas.

The Mission Creek canyon west of Winchester forms the border between Lewis and Nez Perce Counties. The west aspect slope on the Lewis County side is characterized by a relatively open Douglas-fir and ponderosa pine habitat type. Low growing grasses and various brush species dominate the understory. These fuels typically cure early in the summer becoming exceedingly prone to ignition. Fires in this type of vegetation tend to be very rapidly spreading, but burn at moderate intensities. This fuel type is very flashy and easily influenced by weather patterns making suppression efforts difficult and potentially dangerous for firefighters. More heavily timbered areas located in some of the cooler draws can burn very intensely, throwing fire brands and creating rolling embers that ignite spot fires.

There are numerous homes within the timbered area southwest of Winchester, many of which are adjacent to or overtopped by hazardous fuels. These typically drier habitat types are dominated by ponderosa pine, lodgepole pine, Douglas-fir, and western larch. Historically, the understories of these stands were relatively open; maintained by periodic, low intensity surface fires. Years of fire suppression has led to more overcrowded conditions with dense accumulations of dead and down wood and other surface fuels. Additionally, regeneration has begun to encroach on many naturally open meadows. Enhanced vertical and horizontal fuel continuity can lead to larger fires with increased occurrences of crowning and torching. These hazardous fuel complexes coupled with dry summers and numerous ignition sources significantly increase the probability of an intense and destructive wildfire.

##### *Ignition Profile*

Both natural and man-caused fires occur in this area. The high density of recreational use at Winchester Lake State Park and in the timber land to the south and west of the community increase potential ignition sources significantly. The use of mechanized equipment near dry fuels is widespread; yet this also increases the fire risk. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area. Contact between power lines and trees can also spark fires, especially during windy conditions.

Lightning events are common across Lewis County; however, ignitions due to downstrikes occur more frequently in the canyonlands. The Maloney Creek Fire of 2000 was started by a lightning strike in the Maloney Creek drainage near the Salmon River south of Winchester. This fire burned a large portion of the southern arm of Lewis County and neighboring Nez Perce County. The cured grasses and dry forest habitat types that cover the landscape near Winchester are very receptive to ignition.

The abundance of human and natural ignition sources and the dry nature of fuels in the area increase the probability of wildland fire. Fire characteristics will depend on fuel types and

moisture levels, as well as on weather conditions at the time of ignition. Fires during periods of drought with high temperatures, low humidity and strong winds can quickly lead to fast-moving, destructive wildfires regardless of whether the event occurs in forest or rangeland fuels.

#### **4.6.3.6.2 Ingress-Egress**

The primary access into the Winchester community center is via U.S. Highway 95-Business Route, the main highway connecting north and south Idaho. This roadway is well-traveled not only by area commuters, but also by intra- and interstate travelers. Most of U.S. 95 through Lewis County is adjacent to relatively flat agriculture fields; however, the Winchester Grade portion, which scales the Lapwai Creek canyon, is bordered by steep, timbered slopes. The fire potential on these dry slopes was recently demonstrated by a wildfire that caused severe tree mortality and cut off this access route for a significant period of time.

Other potential escape routes include the Old Winchester Grade, Forest Road, and several graveled secondary roads. These routes are typically located in areas at low risk of wildfire; however, there are a few sections that pass through stands of timber or encompass steep grades.

#### **4.6.3.6.3 Infrastructure**

Most residents in Winchester are either connected to a municipal well or have drilled personal or multiple home wells. Few farmers in this area irrigate, so supplementary wells for agricultural purposes are not usually necessary; however, some ranchers use surface runoff or small springs to provide water for livestock. These water resources would not likely be seriously effected by a rangeland fire.

Public transmission lines crisscross the area passing through sections of forest areas. Low risk buffer zones need to be maintained along these corridors in order to prevent the risk of ignition due to arcing or a downed line.

#### **4.6.3.6.4 Fire Protection**

The Winchester Volunteer Fire Department provides structural protection for the community of Winchester, while the Idaho Department of Lands, Craig Mountain District and the Nez Perce Tribe provide wildland fire protection.

#### **4.6.3.6.5 Community Assessment**

The community of Winchester has moderate to high risk of experiencing a wildland fire, which has been recently demonstrated by the 2000 Maloney Creek Fire and a smaller fire in Lapwai Creek canyon. Those homes with timber directly abutting or overhanging structures are at the highest risk. Fires in these timber fuel types are generally much more intense and difficult to control than rangeland fires. Additionally, the abundance of recreational and other human activities in the area drastically increase potential ignition sources. Preparing a home prior to a wildfire event will significantly increase its chance of survival.

#### **4.6.3.6.6 Mitigation Activities**

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Lewis County must be made aware that home defensibility starts with the home. Once a fire has

started and is moving toward a structure or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. "Living with Fire, A Guide for the Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space. Residents of Winchester and the surrounding area should be encouraged to work with local fire departments and fire management agencies within the county to complete individual homesite evaluations. Home defensibility steps should be enacted based on the results of these evaluations.

Other specific mitigation activities are likely to include improvement of emergency water supplies and management of trees and vegetation along roads and power line right-of-ways. Furthermore, building codes should be revised to provide for more fire conscious construction techniques such as using fire resistant siding, roofing, and decking.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles.

Recreational facilities near the community should be kept clean and maintained. In order to mitigate the risk of an escaped campfire, escape proof fire rings and barbeque pits should be installed and maintained. Surface fuel accumulations in nearby forests can also be kept to a minimum by periodically conducting controlled burns. Other actions that would reduce the fire hazard would be thinning and pruning timbered areas, creating a fire resistant buffer along roads and powerline corridors, and strictly enforcing fire-use regulations.

## 4.7 Fire Fighting Resources and Capabilities

Rural and city fire district personnel are often the first responders during emergencies. In addition to house fire protection, they are called on during wildland fires, floods, landslides, and other events. There are many individuals in Lewis County serving fire protection districts in various capacities. The following is a summary of the departments and their resources.

The Fire Fighting Resources and Capabilities information provided in this section is a summary of information provided by the Rural Fire Chiefs or Representatives of the Wildland Fire Fighting Agencies listed. Each organization completed a survey with written responses. Their answers to a variety of questions are summarized here. These summaries indicate their perceptions and information summaries.

### 4.7.1 Wildland Fire Districts

#### 4.7.1.1 Idaho Department of Lands, Craig Mountain Area

Headquarters:

PO Box 68  
Craigmont, Idaho 83523  
Phone: 208-924-5571  
Email: [thawkins@idl.state.id.us](mailto:thawkins@idl.state.id.us)

**Table 4.15 Current Resources-Idaho Department of Lands, Craig Mountain Area**

| Equipment      | Item            | Description                            | Existing | Needed | Details              |
|----------------|-----------------|--|----------|--------|----------------------|
| Outfits        |                 | Protective Clothing & Equipment        | 50       |        |                      |
| Hand Tools     |                 |  |          |        |                      |
|                | Chainsaw        |  | 17       |        |                      |
|                | Misc.           |  | 50+      |        |                      |
| Communications |                 |  |          |        |                      |
|                | Portable Radios | King                                   | 13       |        |                      |
|                | Base Station    | Motorola                               | 1        |        | Craigmont            |
|                | Repeaters       |  | 1        |        | Cottonwood Butte     |
|                | Dispatch        |  | 1        |        | Secretary, full-time |
| Vehicles       |                 |  |          |        |                      |
|                | Wildland Engine | Type 4                                 | 1        |        |                      |
|                | Wildland Engine | Type 6, 4X4                            | 4        |        |                      |
|                | Wildland Engine | 1970 Gamma Goat, 200 gal               | 1        |        |                      |
|                | Engine Patrol   | 1972 Jeep, 50 gal                      | 1        |        |                      |
|                | Water Tender    | 1969 Type 3, 6X6, 2 1/2 ton, 1,200 gal | 1        |        |                      |
|                | 4X4 Pickup      | 1991-2002 1/2 ton                      | 7        |        |                      |

**Table 4.15 Current Resources-Idaho Department of Lands, Craig Mountain Area**

| Equipment       | Item             | Description   | Existing | Needed | Details               |
|-----------------|------------------|---------------|----------|--------|-----------------------|
|                 | Crew cab Pickup  | 1 ton, 4X4    | 2        |        |                       |
|                 | Stake body Truck |               | 2        |        |                       |
|                 | Backhoe          |               | 1        |        |                       |
|                 | Dozer            | Cat D-5       | 1        |        |                       |
|                 | Transport        | 35 ton lowboy | 1        |        |                       |
|                 | ATV              | Yamaha        | 5        |        |                       |
| Aircraft        |                  |               |          |        |                       |
|                 | Helicopter       | Hughes 500    | 1        |        |                       |
|                 | Air Tankers      |               | 2        |        |                       |
| Other Equipment |                  |               |          |        |                       |
|                 | Trailer          | ATV           | 2        |        |                       |
|                 | Water Trailer    |               | 1        |        |                       |
|                 | Water Tank       | 1,800 gal     | 1        |        |                       |
|                 | Water Tank       | 2,000 gal     | 1        |        |                       |
|                 | Water Tank       | 2,100 gal     | 1        |        |                       |
|                 | Pressure Pump    |               | 3        |        |                       |
|                 | Volume Pump      |               | 2        |        |                       |
|                 | Backpack Pump    |               | 2        |        |                       |
|                 | Torches          | Propane       | 6        |        |                       |
|                 | Foam Equipment   |               | 1        |        | unit on Type 4 engine |

**4.7.1.2 Idaho Department of Lands, Maggie Creek Area**

Headquarters:

Rt 2 Box 190  
 Kamiah, Idaho 83536  
 Phone: 208-935-2141  
 Email: [dsummers@idl.state.id.us](mailto:dsummers@idl.state.id.us)

**Table 4.16 Current Resources-Idaho Department of Lands, Maggie Creek Area**

| Equipment | Item   | Description      | Existing | Needed | Details |
|-----------|--------|------------------|----------|--------|---------|
| Outfits   |        |                  |          |        |         |
|           | Shirts | Nomex            | 60       |        |         |
|           | Pants  | Nomex            | 52       |        |         |
|           | Boots  | Wildland Leather | 0        |        |         |
|           | Gloves | Leather          | 36       |        |         |

**Table 4.16 Current Resources-Idaho Department of Lands, Maggie Creek Area**

| Equipment              | Item                | Description                             | Existing | Needed | Details                                |
|------------------------|---------------------|---|----------|--------|--|
|                        | Hard Hats           | Wildland                                | 18       |        |  |
|                        | Goggles             | Wildland                                | 20       |        |  |
|                        | Headlamps           |   | 50       |        |  |
|                        | Fire Shelters       |   | 18       |        |  |
|                        | Breathing Apparatus |   | 0        |        |  |
| <b>Hand Tools</b>      |                     |   |          |        |  |
|                        | Shovels             |   | 45       |        |  |
|                        | Pulaski's           |   | 40       |        |  |
|                        | McLeod's            |   | 10       |        |  |
|                        | Combination         |   | 10       |        |  |
|                        | Green Grubber       |   | 3        |        |  |
|                        | Chainsaw            |   | 10       |        |  |
| <b>Communications</b>  |                     |   |          |        |  |
|                        | Hand-held Radios    | King                                    | 16       |        |  |
|                        | Mobile              | Midland, Motorola                       | 12       |        |  |
|                        | Base Station        | Motorola                                | 1        |        |  |
|                        | Repeaters           |   | 3        |        | Woodrat, Teaken, Cottonwood Butte      |
|                        | Dispatch            |   | 1        |        | 24 hours/day, 7 days/week              |
| <b>Vehicles</b>        |                     |   |          |        |  |
|                        | Wildland Engine     | 2001 Ford F450 4x4 Type 6, 300 gal      | 1        |        |  |
|                        | Wildland Engine     | 1995 Chevrolet 3500 4X4 Type 6, 250 gal | 1        |        |  |
|                        | Wildland Engine     | 1988 GMC 7000 Type 4, 700 gal           | 1        |        |  |
|                        | Water Tender        | 2500-3000 gallon                        |          | 1      | Have some access to tenders from CPTPA |
|                        | Utility Vehicle     | 1993 GMC Crew cab                       | 1        |        |  |
|                        | Utility Vehicle     | 1999 Chevrolet Tahoe                    | 1        |        |  |
|                        | 4X4 Pickup          | 1991-2002 1/2 ton                       | 8        |        |  |
|                        | Truck               | 1950's 2 1/2 ton flatbed                | 1        |        |  |
|                        | ATV                 | Honda 4 wheel drive                     | 3        |        |  |
|                        | ATV                 | Yamaha 2 wheel drive                    | 1        |        |  |
| <b>Other Equipment</b> |                     |   |          |        |  |
|                        | Volume Pump         | Honda                                   | 1        |        |  |

**Table 4.16 Current Resources-Idaho Department of Lands, Maggie Creek Area**

| Equipment | Item           | Description          | Existing | Needed | Details               |
|-----------|----------------|----------------------|----------|--------|-----------------------|
|           | Pump           | Mark III             | 2        | 1      |                       |
|           | Pump           | Mark 26              | 1        |        |                       |
|           | Tank           | 2500 gal port-a-tank | 1        | 1      |                       |
|           | Tank           | 1500 gal port-a-tank | 1        |        |                       |
|           | Portable Pumps |                      | 2        | 1      |                       |
|           | Blower         | Portable Gas         | 2        |        |                       |
|           | Drip Torches   |                      | 8        |        |                       |
|           | Torches        | Propane              | 6        |        |                       |
|           | Foam Equipment |                      | 1        |        | Unit on Type 4 engine |

## 4.7.2 Rural Fire Districts

### 4.7.2.1 Craigmont Volunteer Fire Department

Headquarters:

Craig Leigh, Chief  
 PO Box 63  
 Craigmont, ID 83523  
 Tel: 208-924-7246

*Department Summary:* Craigmont Volunteer Fire Department is a city-based volunteer organization, housed in one building, and managed by the City Council of Craigmont and the Volunteer Fire Department. The department responds to structural, agricultural, and wildland fires occurring within the city. Currently the incident capability is one incident and the recovery requirements vary with everyone working together.

**Table 4.17. Current Resources-Craigmont Volunteer Fire Department**

| Resource  | Item                      | Description | Existing | Needed | Details  |
|-----------|---------------------------|-------------|----------|--------|--|
| Personnel |                           |             |          |        |  |
|           | Basic Member              |             | 17       |        | One has intermediate training, the rest do not.  |
| Training  |                           |             |          |        |  |
|           | Basic Wildland Training   |             |          | 16     | One volunteer meets national standards, but all need wildland, agricultural and haz mat. |
|           | Basic Structural Training |             | 11       | 6      |  |

**Table 4.17. Current Resources-Craigmont Volunteer Fire Department**

| Resource             | Item                     | Description   | Existing | Needed | Details  |
|----------------------|--------------------------|---------------|----------|--------|--|
| Protective Equipment | First Aid Training       |               |          | x      |  |
|                      | Haz-Mat Training         |               |          | x      |  |
|                      | Basic Safety Training    |               |          | x      |  |
|                      | Advanced Safety Training |               |          | x      |  |
|                      | Shirts                   |               |          | 10     |  |
|                      | Pants                    |               |          | 10     |  |
|                      | Coveralls                |               |          | 10     |  |
|                      | Boots                    |               |          | 10     |  |
|                      | Gloves                   |               |          | 15     |  |
|                      | Hard Hats                |               |          | 10     |  |
|                      | Goggles                  |               |          |        |  |
|                      | Headlamps                |               |          |        | Not a necessity  |
|                      | Fire Shelters            |               |          |        | None needed  |
|                      | Breathing Apparatus      |               |          | 5 new  |  |
| Hand Tools           | Shovels                  |               |          |        |  |
|                      | Pulaski's                |               |          |        |  |
|                      | McLeod's                 |               |          |        |  |
|                      | Back Pack pumps          |               |          |        |  |
|                      | Chainsaw                 |               |          |        |  |
|                      | Chainsaw                 |               |          |        |  |
| Communications       | Portable Radios          |               | 1        | 4      |  |
|                      | Mobile Radios            |               | 2        |        |  |
|                      | Base Station             |               | 1        |        |  |
|                      | Dispatch                 |               | 911      |        |  |
| Vehicles             | Structural Engine        | 1975 Vanpelt  |          |        | Need newer foam capability/set-up for each of the two trucks. Also portable pumps for mop-up operations. |
|                      | Structural Engine        | 1953 Seagrave |          |        |  |
|                      | Wildland Engine          |               |          |        |  |
|                      | Water Tender             |               |          |        |  |
|                      | Utility Vehicle          |               |          |        |  |
|                      | Ambulance                |               |          |        |  |
|                      | Ambulance                |               |          |        |  |
|                      | Ambulance                |               |          |        |  |

#### 4.7.2.2 Kamiah Volunteer Fire Department

##### Headquarters:

Chuck Doty, Chief  
 515 10<sup>th</sup> Street, Box67  
 Kamiah, Idaho 83536  
 Phone: 208-935-0049  
 Email: [cedoty@camasnet.com](mailto:cedoty@camasnet.com)

*Department Summary:* Kamiah Volunteer Fire Department is a city based volunteer organization housed in one building and is managed by the city of Kamiah, and rural fire district commissioners. Kamiah responds to structural, agricultural and wildland fires. Currently the incident capability is two incidents and the recovery requirements take between 3 and 4 hours.

**Table 4.18. Current Resources-Kamiah Volunteer Fire Department**

| Resource             | Item                      | Description | Existing | Needed | Details                                |
|----------------------|---------------------------|-------------|----------|--------|--|
| Personnel            |                           |             |          |        |  |
|                      | Basic Member              |             | 15       | 10     | 5 members in training; need volunteers |
| Training             |                           |             |          |        |  |
|                      | Basic Wildland Training   |             |          | X      |  |
|                      | Basic Structural Training |             |          | X      |  |
|                      | First Aid Training        |             |          | X      |  |
|                      | Haz-Mat Training          |             |          | X      |  |
|                      | Basic Safety Training     |             |          | X      |  |
|                      | Advanced Safety Training  |             |          | X      |  |
| Protective Equipment |                           |             |          |        |  |
|                      | Shirts                    | Nomex       | 20       | 25     | Need newer                             |
|                      | Pants                     | Nomex       | 20       | 25     | Need newer                             |
|                      | Coveralls                 | Nomex       | 0        | 25     |  |
|                      | Boots                     | Leather     | 0        | 20     |  |
|                      | Gloves                    | Leather     | 0        | 20     |  |
|                      | Hard Hats                 |             | 24       |        |  |
|                      | Goggles                   | Wildland    | 0        | 20     |  |
|                      | Headlamps                 |             | 5        | 15     |  |
|                      | Fire Shelters             |             | 3        | 20     | Current are out of service             |
|                      | Breathing Apparatus       |             | 10       | 10     |  |
| Hand Tools           |                           |             |          |        |  |
|                      | Shovels                   |             | 10       | 10     |  |
|                      | Pulaski's                 |             | 10       | 10     |  |
|                      | McLeod's                  |             | 3        | 17     |  |
|                      | Back Pack pumps           |             | 8        | 8      | need newer                             |

**Table 4.18. Current Resources-Kamiah Volunteer Fire Department**

| Resource               | Item                 | Description                                    | Existing | Needed  | Details                                    |
|------------------------|----------------------|--|----------|---------|--|
|                        | Chainsaw             | Stihl 026 20" bar                              | 1        | 2       |  |
|                        | Chainsaw             | 044 28" bar                                    | 0        | 1       |  |
| <b>Communications</b>  |                      |  |          |         |  |
|                        | Portable Radios      | Motorola                                       | 8        | 16      |  |
|                        | Mobile Radios        | Motorola                                       | 4        | 1       |  |
|                        | Base Station         | At fire station                                | 1        |         |  |
|                        | Dispatch             | Lewis County Sheriff                           | 1        |         | 24 hours/day, 7 day/week                   |
| <b>Vehicles</b>        |                      |  |          |         |  |
|                        | Structural Engine    | 1978 Chevrolet pumper, 150 gallon, 1,000 gpm   | 1        |         | Need newer that will hold crew of 5-6      |
|                        | Structural Engine    | 1979 Chevrolet pumper, 1,000 gallon, 1,000 gpm | 1        | 1       | Need newer that will hold crew of 5-6      |
|                        | Wildland Engine      | 1999 Chevrolet Type 6, 250 gallon, 100 gpm     | 1        |         |  |
|                        | Water Tender         | 1970s Kenworth, 4,000 gallon                   | 1        |         |  |
|                        | Utility Vehicle      | 4X4  | 1        |         | Command and communications                 |
|                        | Ambulance            | 1995 wheel coach Type 3                        | 1        |         | At least one ambulance rolls on every fire |
|                        | Ambulance            | 1999 wheel coach Type 3                        | 1        |         | At least one ambulance rolls on every fire |
|                        | Ambulance            | 1983 Van                                       | 1        |         | At least one ambulance rolls on every fire |
| <b>Other Equipment</b> |                      |  |          |         |  |
|                        | Tank                 | 1500 gallon Fold-a-Tank                        | 1        |         |  |
|                        | Thermal Imaging Tool |  | 0        | 1       |  |
|                        | Generator            |  | 0        | 1       |  |
|                        | Flares               |  | 0        | 2 cases |  |
|                        | Portable Pump        | Hale 450 gpm                                   | 0        | 1       |  |
|                        | Flares               |  | 0        | 2 cases |  |
|                        | Foam Equipment       | Injection type                                 | 1        |         | Installed on Type 6 engine                 |

#### 4.7.2.3 Nezperce Volunteer Fire Department

Headquarters:

Dave Kuther, Chief  
HCR Box 1  
Nezperce, Idaho 83543  
Phone: 208-476-2359

*Department Summary:* Nezperce Volunteer Fire Department is a city based volunteer organization managed by the city council and fire district commissioners. Nezperce responds to structural and agricultural fires. Currently the incident capacity is one single family dwelling.

**Table 4.19. Current Resources-Nezperce Volunteer Fire Department**

| Resource             | Item                      | Description              | Existing | Needed | Details         |
|----------------------|---------------------------|--------------------------|----------|--------|-----------------|
| Personnel            |                           |                          |          |        |                 |
|                      | Basic Member              |                          | 12       |        |                 |
|                      | Intermediate Member       |                          | 4        |        | Need volunteers |
|                      | Advanced Member           |                          |          |        |                 |
| Training             |                           |                          |          |        |                 |
|                      | Basic Wildland Training   |                          |          | X      |                 |
|                      | Basic Structural Training |                          |          | X      |                 |
|                      | Haz Mat Training          | First Responder Training |          | X      |                 |
|                      | Basic Safety Training     | Refresher Course         |          | X      |                 |
|                      | First Aid Training        | Refresher Course         |          | X      |                 |
|                      | Advanced Safety Training  |                          |          | X      |                 |
| Protective Equipment |                           |                          |          |        |                 |
|                      | Shirts                    | Nomex                    | 10       | 5      |                 |
|                      | Pants                     | Nomex                    | 15       | 15     |                 |
|                      | Boots                     | Wildland Leather         | 15       | 6      |                 |
|                      | Gloves                    | Leather                  | 15       | 15     |                 |
|                      | Hard Hats                 | Wildland                 | 10       | 6      |                 |
|                      | Goggles                   |                          |          |        |                 |
|                      | Headlamps                 |                          |          |        |                 |
|                      | Fire Shelters             |                          |          |        |                 |
|                      | Breathing Apparatus       |                          | 40       | 0      |                 |
| Hand Tools           |                           |                          |          |        |                 |
|                      | Shovels                   |                          | 20       | 10     |                 |
|                      | Pulaski's                 |                          | 15       | 10     |                 |
|                      | McLeod's                  |                          | 15       | 10     |                 |
|                      | Fire Swatters             |                          | 2        | 10     |                 |
|                      | Chainsaw                  | John Deere 24" bar       | 1        |        |                 |

**Table 4.19. Current Resources-Nezperce Volunteer Fire Department**

| Resource       | Item              | Description                   | Existing | Needed | Details                   |
|----------------|-------------------|-------------------------------|----------|--------|---------------------------|
| Communications |                   |                               |          |        |                           |
|                | Mobile Radios     | Kenwood                       | 3        |        |                           |
|                | Portable Radios   | Kenwood                       | 3        |        |                           |
|                | Dispatch          | Lewis County Sheriff          | 1        |        | 24 hours/day, 7 days/week |
| Vehicles       |                   |                               |          |        |                           |
|                | Structural Engine | 1974 IHC, 750 gpm             | 1        |        |                           |
|                | Structural Engine | 1947 Ford, 500 gpm            | 1        |        |                           |
|                | Structural Engine | 1925 Hose Hauler              | 1        |        |                           |
|                | Wildland Engine   | 1974 IHC, 750 gpm             | 1        |        |                           |
|                | Wildland Engine   | 1970 Mack, 4,000 tanker       | 1        |        |                           |
|                | Wildland Engine   | 1976 Dodge, 250 gal with pump | 1        |        |                           |

#### 4.7.2.4 Winchester Volunteer Fire Department

Headquarters:

Walter Joe Howard, Chief  
HCR 1 Box 446  
Winchester, Idaho 83555  
Phone: 208-924-5865  
Email: [divesar@hotmail.com](mailto:divesar@hotmail.com)

*District Summary:* Winchester Volunteer Fire Department is a city based volunteer organization managed by the Fire Chief, City Council and the Mayor. Winchester responds to structural and wildland fires. Currently the incident capacity is one single family dwelling, recovery requirements are for all units to be restocked and maintained.

**Table 4.20. Current Resources-Winchester Volunteer Fire Department**

| Resource  | Item                    | Description   | Existing | Needed | Details  |
|-----------|-------------------------|---|----------|--------|--|
| Personnel |                         |   |          |        |  |
|           | Basic Member            | Entry level firefighter with at least 40 hours training     | 12       |        | 12 firefighters are trained in basic structural, none are firefighter 1 certified. |
|           | Intermediate Member     | Entry level firefighter with at least 120 hours of training | 1        |        | Need volunteers  |
|           | Advanced Member         | ICS level manager   | 1        |        | Chief  |
| Training  |                         |   |          |        |  |
|           | Basic Wildland Training |   | 4        | X      |  |

**Table 4.20. Current Resources-Winchester Volunteer Fire Department**

| Resource             | Item                        | Description              | Existing         | Needed | Details                              |
|----------------------|-----------------------------|--------------------------|------------------|--------|--------------------------------------|
|                      | Basic Structural Training   |                          | 10               | X      |                                      |
|                      | Basic Agricultural Training |                          |                  | X      | Would like more information          |
|                      | Haz Mat Training            | First Responder Training | 4                | X      |                                      |
|                      | Basic Safety Training       | Refresher Course         | 1                | X      |                                      |
|                      | First Aid Training          | Refresher Course         | 5                | X      | EMT's                                |
|                      | Advanced Safety Training    |                          |                  | X      |                                      |
| Protective Equipment |                             |                          |                  |        |                                      |
|                      | Shirts                      | Nomex                    | 12               | 3      | 12 sets of Nomex coveralls currently |
|                      | Pants                       | Nomex                    | 0                | 0      |                                      |
|                      | Boots                       | Wildland Leather         | 0                | 15     |                                      |
|                      | Gloves                      | Leather                  | 15               | 0      |                                      |
|                      | Hard Hats                   | Wildland                 | 15               | 0      |                                      |
|                      | Goggles                     |                          | 15               | 0      |                                      |
|                      | Headlamps                   |                          | 15               | 0      |                                      |
|                      | Fire Shelters               |                          | 15               | 0      |                                      |
|                      | Breathing Apparatus         |                          | 25               | 0      | Need NFPA updated models             |
|                      | Fire Line Packs             |                          | 15               | 0      |                                      |
|                      | Wildland Particle Masks     |                          | 15               | 0      |                                      |
| Hand Tools           |                             |                          |                  |        |                                      |
|                      | Shovels                     |                          | 7                |        |                                      |
|                      | Pulaski's                   |                          | 7                |        |                                      |
|                      | Backpack water sprayer      |                          | 2 hard<br>2 soft | 8 soft | All existing in bad shape            |
|                      | Axes                        |                          | 1                |        |                                      |
|                      | Circular Saw                | Structure                |                  | 1      |                                      |
|                      | Chainsaw                    | Stihl 046 24" bar        |                  | 1      |                                      |
|                      | Chainsaw                    | Stihl 036 24" bar        | 1                |        |                                      |
| Communications       |                             |                          |                  |        |                                      |
|                      | Mobile Radios               | G.E.                     | 3                |        | Vehicle mounted                      |
|                      | VHF Radios                  |                          |                  | 15     | Handhelds                            |
|                      | Base Station                | Motorola                 | 1                |        | Town alarm                           |
|                      | Dispatch                    | Lewis County Sheriff     | 1                |        | 24 hours/day, 7 days/week            |
| Vehicles             |                             |                          |                  |        |                                      |
|                      | Structural Engine           | 1947 Ford, 250 gal       | 1                | 1      | Need newer                           |

**Table 4.20. Current Resources-Winchester Volunteer Fire Department**

| Resource        | Item              | Description                   | Existing | Needed | Details  |
|-----------------|-------------------|-------------------------------|----------|--------|--|
|                 | Structural Engine | 1967 GMC - LaFrance, 500 gal  | 1        | 1      | Need newer   |
|                 | Wildland Engine   | 1945 Kaiser Jeep 6X6, 618 gal | 1        | 1      | Need newer<br>IDL loan   |
|                 | Tanker/Tender     | 2000 gal.                     |          | 2      | Need more capacity<br>for structure fires in<br>area of impact zone. |
|                 | Fold-a-Tank       | 2000 gal.                     |          | 4      |  |
|                 | ICS Vehicle       | 1967 Jeep 4x4                 |          |        | IDL loan-old<br>ambulance van  |
| Other Equipment |                   |                               |          |        |  |
|                 | Flares            |                               | 1        |        | Case   |
|                 | Portable Pump     | Floating                      |          | 1      |  |
|                 | Foam Equipment    | CAFS                          |          | 1      |  |

#### 4.7.2.5 Additional Entities with Fire Response Capabilities in the Area

Avista Utilities Corporation  
Rick Davis or Terry Kolb  
Lewiston, Idaho 83501  
Phone: 208-798-1423

Bureau of Land Management  
Dave Overcast, Fire Use Specialist  
Cottonwood Field Office  
Route 3, Box181  
Cottonwood, Idaho 83522  
Phone: 208-962-3786  
Email: [david\\_overcast@blm.gov](mailto:david_overcast@blm.gov)

Nez Perce Tribal Rural Fire Department  
Nez Perce Tribe  
Sandy Holt  
Lapwai, Idaho 83540  
Phone: 208-843-2253  
Email: [sandyh@nezperce.org](mailto:sandyh@nezperce.org)

United States Forest Service  
Nez Perce National Forest  
Route 2, Box 475  
Grangeville, Idaho 83530  
Phone: 208-983-1950  
Email: [stmoore@fs.fed.us](mailto:stmoore@fs.fed.us)

## **4.8 Issues Facing Lewis County Fire Protection**

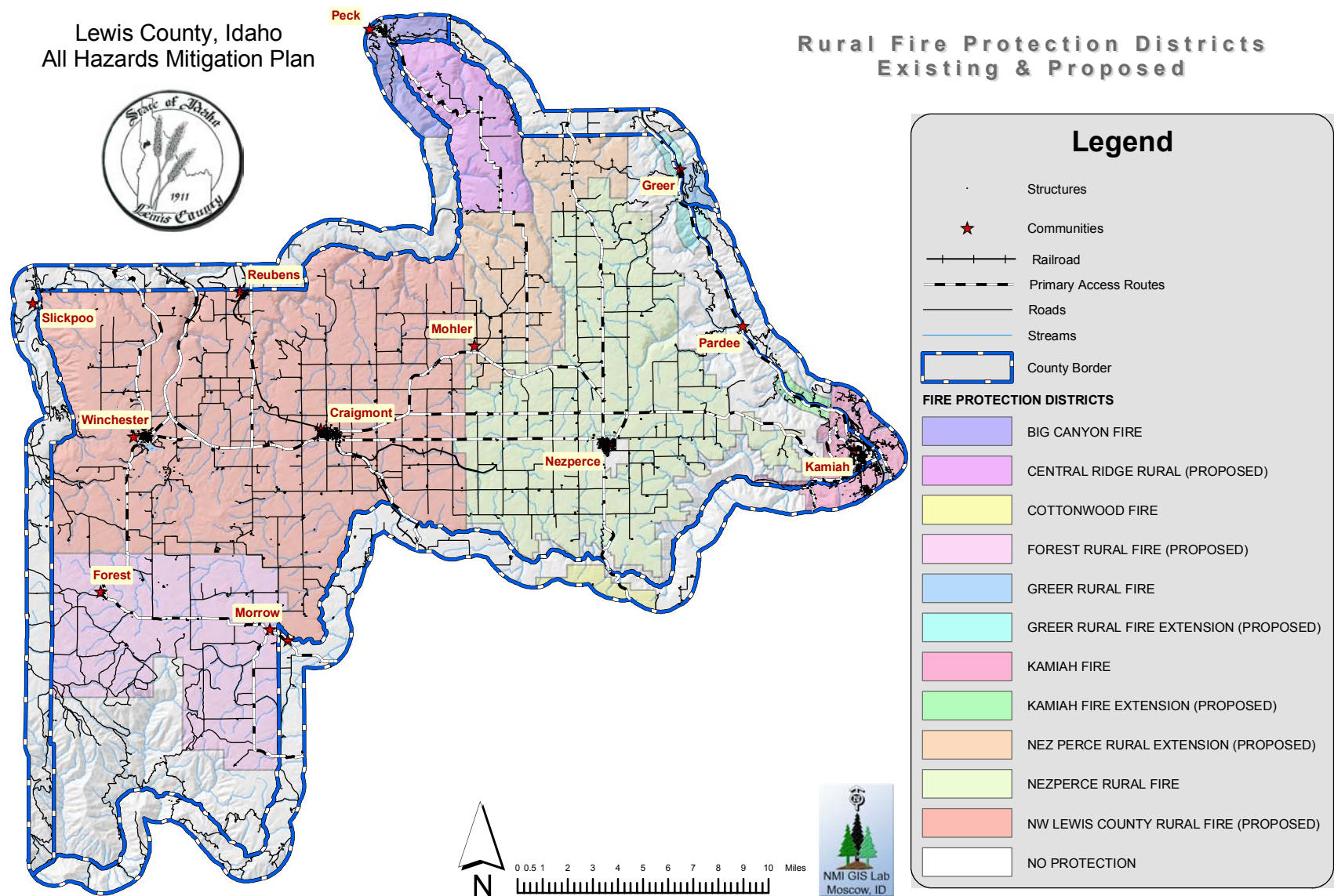
**Lack of structural fire protection in rural areas of the County** – Most rural residents are without any form of structural fire protection in Lewis County. Fast moving range fires could easily move into the settled areas prior to the arrival of resources.

Currently, there are only 4 city fire protection districts and two rural fire protection districts in Lewis County. While these districts provide structural fire protection for a majority of the homes in the county, there are many rural home owners without structural fire protection. The mail survey of residents of Lewis County demonstrated that approximately 22% of those respondents who live outside of a structure fire protection area reported they believe they have rural fire protection services. Currently, city fire protection districts in Lewis County serve approximately 1,670 residences, rural fire protection districts serve 1,030 residences. There are approximately 4,600 homes in the county.

As part of the Wildland-Urban Interface Wildfire Mitigation Plan, the recommendation is being made to create 3 rural fire protection districts in Lewis County, and extend the boundaries of 3 more districts. One new district would serve the homeowners in the northern end of the county (Central Ridge Rural Fire), one would serve the rural homeowners in the northwestern portions of the County (Northwest Lewis County Rural Fire), and one would serve the homeowners in the southwestern portions of the County (Forest Rural Fire). Extensions of existing districts would include Kamiah Fire, Nezperce Rural Fire, and Greer Rural Fire into parts of Lewis County. All of the boundaries are detailed in Appendix I and in large format maps. These changes, if implemented would increase the current coverage rate from 59% of homes covered, to 100% of the homes covered.

Of course, these recommended changes must have the support and backing of the rural residents that would receive the benefits of the increased fire protection, and the burden of the increased taxes from protection. These issues must be dealt with on a local level involving discussions on the level of services to be provided, how volunteers would be recruited and retained, and where new fire stations would be located. Through the recommendations made in this plan, it is the intention to point out the need for these activities, make general projections of the costs, and facilitate their creation for those areas where residents desire this service.

**Figure 4.7. Existing and proposed rural fire protection districts in and adjacent to Lewis County.**



**Figure 4.8. Existing and proposed rural fire protection districts in and adjacent to the west side of Lewis County.**

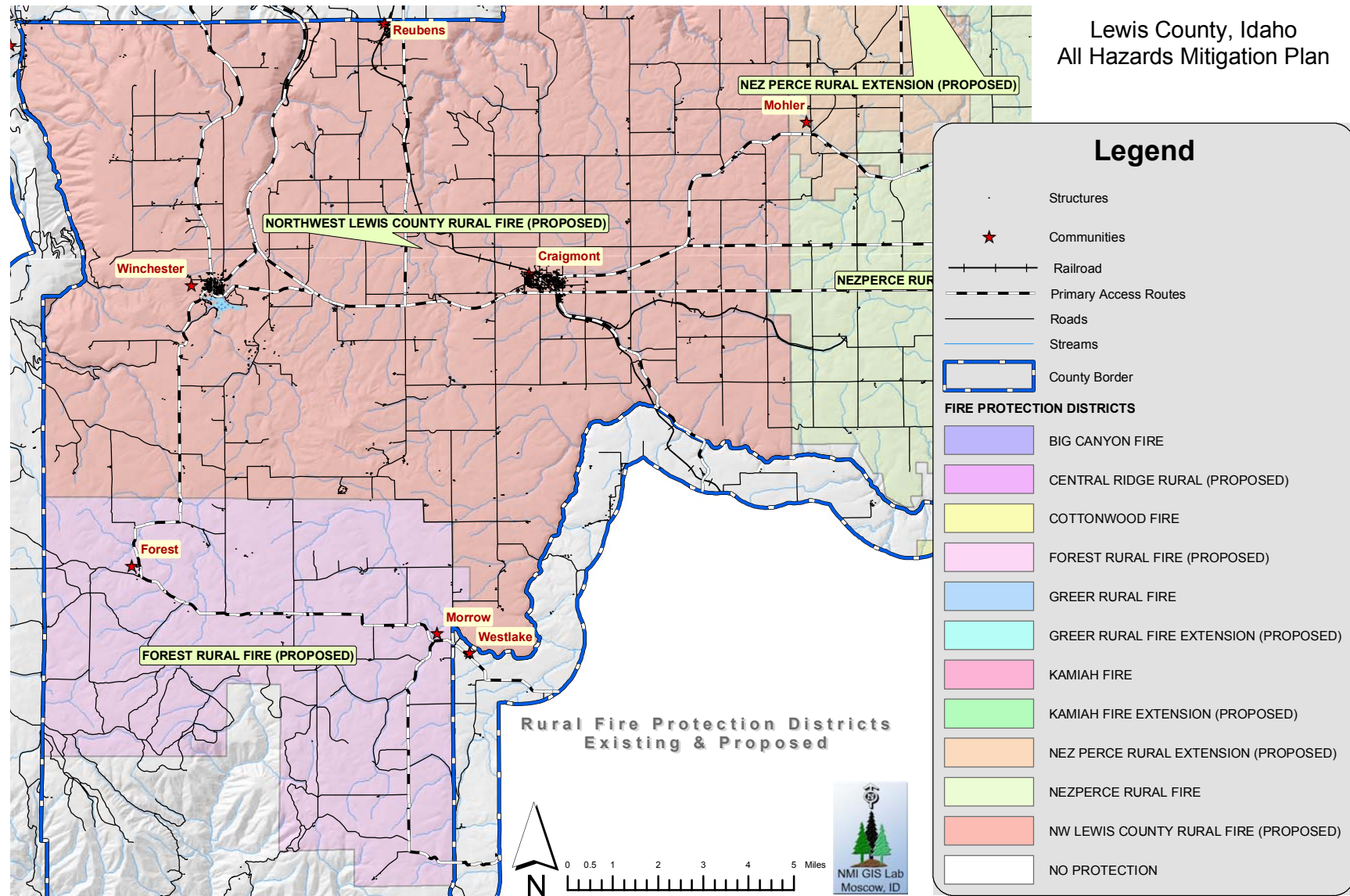
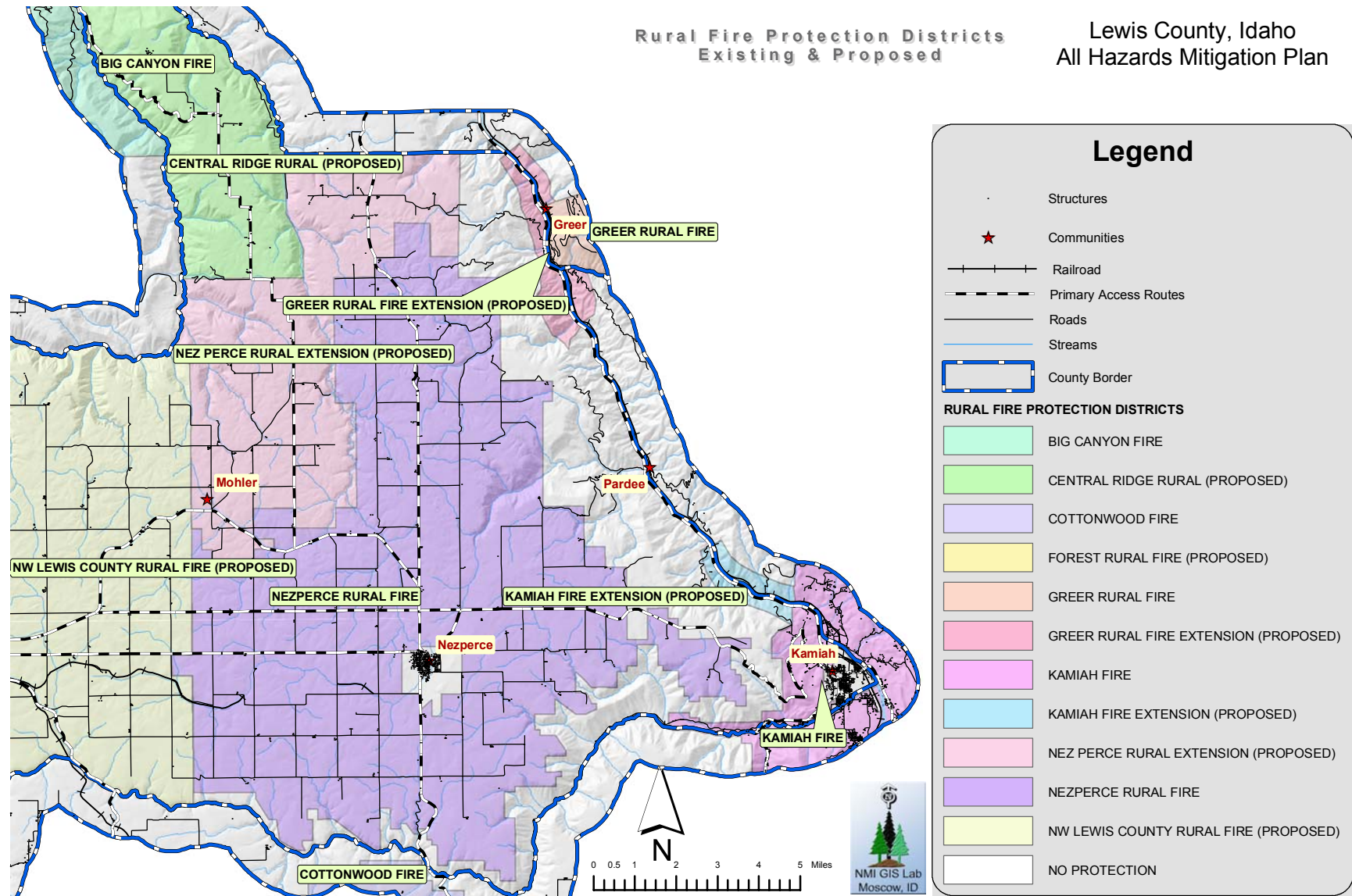


Figure 4.9. Existing and proposed rural fire protection districts in and adjacent to the east side of Lewis County.



## **4.9 Current Wildfire Mitigation Activities in Lewis County**

### **4.9.1 Nez Perce Tribe Activities**

Nez Perce Tribal Forestry Fuels Accomplishments for Lewis County

Wildland Urban Interface (WUI) and Hazardous Fuels Reduction (HFR)

- 2004 SCA Fire Education Team – They had informational booths with a model defensible space house set up at Nezperce Prairie Days and Winchester Days. They provided homeowners with fire prevention information and received additional requests for home evaluations. The SCA team completed 43 home evaluations in the Winchester area for residents.
- 2004 SCA Fire Monitoring Team – This crew has been responsible for collecting and analyzing fuels data on hazardous fuels and wildland urban interface treatments. This information is being used for monitoring fuels treatments and planning treatment operations.
- Pre commercial thinning – 514 acres were thinned to a stocking level of 360 trees per acre from approximately 1000 to 3000 trees per acre. The resulting slash was mitigated by three methods: pile and burn, pile and chip, or lop and scatter.
- Grazing fuels reduction – Barbed wire fences were constructed around a Tribal reserve and existing stock ponds were improved for watering sources on 640 acres. The property contained approximately 500 acres of ponderosa pine plantations with 4 foot tall grasses. The resulting grazing should significantly increase wildland firefighter safety within the property and reduce the potential of a stand replacement fire.
- Brush reduction – Approximately 30 acres of brush reduction was accomplished for hazardous fuels reduction within Tribal timbered lands. The brush was mulched with a Fecon bull hog shredder on a small tracked machine (ASV).

### **4.9.2 Fuel Breaks near Forest**

When the Maloney Creek Fire burned in 2000, private timberland along the Soldiers Meadow Road and Forest Road was cut to provide a fuel break. This initial harvest was limited to narrow strips adjacent to the roadway. Since the fire, more extensive timber management has occurred in these areas. Unhealthy or overcrowded forest stands along these roadways have been heavily thinned. Understory vegetation and other surface fuels has also been removed and accumulated slash has been mechanically piled. Not only does this provide a fuel break to protect citizens of Forest from oncoming fires, but this active forest management has also improved the health of the forest in general.

### **4.9.3 New Sheriff Repeater Tower**

Through an Idaho Bureau of Homeland Security grant, the Lewis County Sheriff's Office was funded for the construction of a new emergency services radio repeater tower to be located near Winchester. The tower is intended to repeat radio message along the US-95 corridor between Winchester and Culdesac. This grant was awarded during the term of this plan and was previously identified as a need in the county. The tower is expected to be operational in late 2004 or early 2005.

This grant was one item in a list of items awarded for Lewis County and represents one of the many awards that signals the aggressive nature of the County to prepare for disasters. These

efforts and others like them are needed in the future in order to mitigation potential losses in Lewis County.

#### **4.9.4 Student Conservation Corps – Fire Education Team**

The Clearwater Resource Conservation and Development Council, Inc., sponsored a Student Conservation Corps., Fire Education Team during the 2003 and 2004 field seasons. The team members worked closely with the Nez Perce Tribe conducting mitigation efforts and assessments on the Reservation and off the Reservation. Many of their projects were located in Lewis County. The following is a summary of the activities the team conducted during 2004. These efforts, and others like it, have made a positive impact on the wildfire risk in the North Central Idaho Area.

##### **Field Report Overview: Team Nez Perce**

##### **HOME EVALUATIONS**

- Winchester- 43 (all homes in community received fire education material)
- Lapwai-3
- Syringa/Lowell/Kooskia- 39 (and counting)

##### **FUELS REDUCTIONS AND RELATED PROJECTS**

- Homes: Lapwai-2; Winchester-1; Syringa-2
- Projects: Spreading grass seed; mending fences

##### **EVENTS/EDUCATIONAL OUTREACH**

- General Council Display
- Slash Pile Burn
- Drug and Alcohol Awareness Training
- Kamiah Head start Fire Education Day
- Lapwai Elementary Fire Education Day
- Summerfest in Hells Gate State Park
- Winchester City Council Meeting
- Winchester Days
- Talmaks Encampment Picnic and Auction
- Boys and Girls Club of Lapwai Fireworks Safety Program
- Nez Perce Prairie Days
- Bio-Control Center Tour
- Winchester State Park Movie Showing and Campfire
- Winchester County Museum Meeting
- Interagency Hazard Form Training
- Native Plant/Fire Resistant Vegetation Walk
- Idaho County Fair

## **PERSONAL PROJECTS**

- Firewise Landscaping Brochure
- Wildfire Watchout Curriculum
- Fire Ecology Signs on the Discovery Loop Trail at the Wolf Rehabilitation Center
- "How the Nez Perce View Fire" overview and contact list

## **PUBLIC RECOGNITION**

- Lewiston Morning Tribune Article
- Tribal Newsletter Article
- Lewis County Herald
- Orofino Community Spotlight

## **HIGHLIGHTS**

- Trips: Glacier NP; Olympic NP/Seattle; Tubing on the Selway; Various camping trips
- Cultural Experiences: Nez Perce Historical Park/Sweat House

## **UPCOMING EVENTS/PROJECTS**

- Fire Education programs in the schools
- Creating useful maps utilizing home evaluation data
- Further training in fire prevention and GIS

## Chapter 5: Treatment Recommendations

### 5 Administration & Implementation Strategy

Critical to the implementation of this Wildfire Hazard Mitigation Plan will be the identification of, and implementation of, an integrated schedule of treatments targeted at achieving an elimination of the lives lost, and reduction in structures destroyed, infrastructure compromised, and unique ecosystems damaged that serve to sustain the way-of-life and economy of Lewis County and the region. Since there are many management agencies and thousands of private landowners in Lewis County, it is reasonable to expect that differing schedules of adoption will be made and varying degrees of compliance will be observed across all ownerships.

Lewis County encourages the philosophy of instilling disaster resistance in normal day-to-day operations. By implementing plan activities through existing programs and resources, the cost of mitigation is often a small portion of the overall cost of a project's design or program.

The land management agencies in Lewis County, specifically the Idaho Department of Lands, are participants in this planning process and have contributed to its development. Where available, their schedule of land treatments have been considered in this planning process to better facilitate a correlation between their identified planning efforts and the efforts of Lewis County.

All risk assessments were made based on the conditions existing during 2004-05, thus, the recommendations in this section have been made in light of those conditions. However, the components of risk and the preparedness of the county's resources are not static. It will be necessary to fine-tune this plan's recommendations annually to adjust for changes in the components of risk, population density changes, infrastructure modifications, and other factors.

As part of the Policy of Lewis County in relation to this planning document, this entire **Wildfire Mitigation Plan** should be reviewed annually at a special meeting of the Lewis County Commissioners, open to the public and involving all municipalities/jurisdictions, where action items, priorities, budgets, and modifications can be made or confirmed. A written review of the plan should be prepared (or arranged) by the Chairman of the County Commissioners, detailing plans for the year's activities, and made available to the general public ahead of the meeting (in accord with the Idaho Open Public Meeting Laws). Amendments to the plan should be detailed at this meeting, documented, and attached to the formal plan as an amendment to the Wildfire Mitigation Plan. Re-evaluation of this plan should be made on the 5<sup>th</sup> anniversary of its acceptance, and every 5-year period following.

#### 5.1 Prioritization of Mitigation Activities

The prioritization process will include a special emphasis on benefit-cost analysis review. The process will reflect that a key component in funding decision is a determination that the project will provide an equivalent or more in benefits over the life of the project when compared with the costs. Projects will be administered by local jurisdictions with overall coordination provided by the County Emergency Management Coordinator.

County Commissioners and the elected officials of all jurisdictions will evaluate opportunities and establish their own unique priorities to accomplish mitigation activities where existing funds and resources are available and there is community interest in implementing mitigation measures. If no federal funding is used in these situations, the prioritization process may be less formal. Often the types of projects that the County can afford to do on their own are in relation

to improved codes and standards, department planning and preparedness, and education. These types of projects may not meet the traditional project model, selection criteria, and benefit-cost model. The County will consider all pre-disaster mitigation proposals brought before the County Commissioners by department heads, city officials, fire districts and local civic groups.

When federal or state funding is available for hazard mitigation, there are usually requirements that establish a rigorous benefit-cost analysis as a guiding criterion in establishing project priorities. The county will understand the basic federal grant program criteria which will drive the identification, selection, and funding of the most competitive and worthy mitigation projects. FEMA's three grant programs (the post-disaster Hazard Mitigation Grant Program, the pre-disaster Flood Mitigation Assistance and Pre-Disaster Mitigation grant programs) that offer federal mitigation funding to state and local governments all include the benefit-cost and repetitive loss selection criteria.

The prioritization of projects will occur annually and be facilitated by the County Emergency Management Coordinator to include the County Commissioner's Office, City Mayors and Councils, Fire District Chiefs and Commissioners, agency representatives (USFS, State Lands, etc.). The prioritization of projects will be based on the selection of projects which create a balanced approach to pre-disaster mitigation which recognizes the hierarchy of treating in order (highest first):

- People and Structures
- Infrastructure
- Local and Regional Economy
- Traditional Way of Life
- Ecosystems

### **5.1.1 Prioritization Scheme**

A numerical scoring system is used to prioritize projects. This prioritization serves as a guide for the county when developing mitigation activities. This project prioritization scheme has been designed to rank projects on a case by case basis. In many cases, a very good project in a lower priority category could outrank a mediocre project in a higher priority. The county mitigation program does not want to restrict funding to only those projects that meet the high priorities because what may be a high priority for a specific community may not be a high priority at the county level. Regardless, the project may be just what the community needs to mitigate disaster. The flexibility to fund a variety of diverse projects based on varying reasons and criteria is a necessity for a functional mitigation program at the County and community level.

To implement this case by case concept, a more detailed process for evaluating and prioritizing projects has been developed. Any type of project, whether county or site specific, will be prioritized in this more formal manner.

To prioritize projects, a general scoring system has been developed. This prioritization scheme has been used in statewide all hazard mitigations plans. These factors range from benefit-cost ratios, to details on the hazard being mitigated, to environmental impacts.

Since planning projects are somewhat different than non-planning projects when it comes to reviewing them, different criteria will be considered, depending on the type of project.

The factors for the non-planning projects include:

- Cost/Benefit
- Population Benefit

- Property Benefit
- Economic Benefit
- Project Feasibility (environmentally, politically, socially)
- Hazard Magnitude/Frequency
- Potential for repetitive loss reduction
- Potential to mitigate hazards to future development
- Potential project effectiveness and sustainability

The factors for the planning projects include:

- Cost/Benefit
- Vulnerability of the community or communities
- Potential for repetitive loss reduction
- Potential to mitigate hazards to future development

Since some factors are considered more critical than others, two ranking scales have been developed. A scale of 1-10, 10 being the best, has been used for cost, population benefit, property benefit, economic benefit, and vulnerability of the community. Project feasibility, hazard magnitude/frequency, potential for repetitive loss reduction, potential to mitigate hazards to future development, and potential project effectiveness and sustainability are all rated on a 1-5 scale, with 5 being the best. The highest possible score for a non-planning project is 65 and for a planning project is 30.

The guidelines for each category are as follows:

#### **5.1.1.1 Benefit / Cost**

The analysis process will include summaries as appropriate for each project, but will include benefit / cost analysis results. Projects with a negative benefit / cost analysis result will be ranked as a 0. Projects with a positive Benefit / Cost analysis will receive a score equal to the projects Benefit / Cost Analysis results divided by 10. Therefore a project with a BC ratio of 50:1 would receive 5 points, a project with a BC ratio of 100:1 (or higher) would receive the maximum points of 10.

#### **5.1.1.2 Population Benefit**

Population Benefit relates to the ability of the project to prevent the loss of life or injuries. A ranking of 10 has the potential to impact over 3,000 people. A ranking of 5 has the potential to impact 100 people, and a ranking of 1 will not impact the population. In some cases, a project may not directly provide population benefits, but may lead to actions that do, such as in the case of a study. Those projects will not receive as high of a rating as one that directly effects the population, but should not be considered to have no population benefit.

#### **5.1.1.3 Property Benefit**

Property Benefit relates to the prevention of physical losses to structures, infrastructure, and personal property. These losses can be attributed to potential dollar losses. Similar to cost, a ranking of 10 has the potential to save over \$1,000,000 in losses, a ranking of 5 has the potential to save roughly \$100,000 in losses, and a ranking of 1 only has the potential to save less than \$100 in losses. In some cases, a project may not directly provide property benefits, but may lead to actions that do, such as in the case of a study. Those projects will not receive

as high of a rating as one that directly effects property, but should not be considered to have no property benefit.

#### **5.1.1.4 Economic Benefit**

Economic Benefit is related to the savings from mitigation to the economy. This benefit includes reduction of losses in revenues, jobs, and facility shut downs. Since this benefit can be difficult to evaluate, a ranking of 10 would prevent a total economic collapse, a ranking of 5 could prevent losses to about half the economy, and a ranking of 1 would not prevent any economic losses. In some cases, a project may not directly provide economic benefits, but may lead to actions that do, such as in the case of a study. Those projects will not receive as high of a rating as one that directly affects the economy, but should not be considered to have no economic benefit.

#### **5.1.1.5 Vulnerability of the Community**

For planning projects, the vulnerability of the community is considered. A community that has a high vulnerability with respect to other jurisdictions to the hazard or hazards being studied or planned for will receive a higher score. To promote planning participation by the smaller or less vulnerable communities in the state, the score will be based on the other communities being considered for planning grants. A community that is the most vulnerable will receive a score of 10, and one that is the least, a score of 1.

#### **5.1.1.6 Project Feasibility (Environmentally, Politically & Socially)**

Project Feasibility relates to the likelihood that such a project could be completed. Projects with low feasibility would include projects with significant environmental concerns or public opposition. A project with high feasibility has public and political support without environmental concerns. Those projects with very high feasibility would receive a ranking of 5 and those with very low would receive a ranking of 1.

#### **5.1.1.7 Hazard Magnitude/Frequency**

The Hazard Magnitude/Frequency rating is a combination of the recurrence period and magnitude of a hazard. The severity of the hazard being mitigated and the frequency of that event must both be considered. For example, a project mitigating a 10-year event that causes significant damage would receive a higher rating than one that mitigates a 500-year event that causes minimal damage. For a ranking of 5, the project mitigates a high frequency, high magnitude event. A 1 ranking is for a low frequency, low magnitude event. Note that only the damages being mitigated should be considered here, not the entire losses from that event.

#### **5.1.1.8 Potential for repetitive loss reduction**

Those projects that mitigate repetitive losses receive priority consideration here. Common sense dictates that losses that occur frequently will continue to do so until the hazard is mitigated. Projects that will reduce losses that have occurred more than three times receive a rating of 5. Those that do not address repetitive losses receive a rating of 1. Potential to mitigate hazards to future development Proposed actions that can have a direct impact on the vulnerability of future development are given additional consideration. If hazards can be mitigated on the onset of the development, the county will be less vulnerable in the future.

Projects that will have a significant effect on all future development receive a rating of 5. Those that do not affect development should receive a rating of 1.

#### **5.1.1.9 Potential project effectiveness and sustainability**

Two important aspects of all projects are effectiveness and sustainability. For a project to be worthwhile, it needs to be effective and actually mitigate the hazard. A project that is questionable in its effectiveness will score lower in this category. Sustainability is the ability for the project to be maintained. Can the project sustain itself after grant funding is spent? Is maintenance required? If so, are or will the resources be in place to maintain the project. An action that is highly effective and sustainable will receive a ranking of 5. A project with effectiveness that is highly questionable and not easily sustained should receive a ranking of 1.

#### **5.1.1.10 Final ranking**

Upon ranking a project in each of these categories, a total score can be derived by adding together each of the scores. The project can then be ranking high, medium, or low based on the non-planning project thresholds of:

Project Ranking Priority Score

- High 40-65
- Medium 25-39
- Low 9-25

## **5.2 Possible Fire Mitigation Activities**

As part of the implementation of fire mitigation activities in Lewis County, a variety of management tools may be used. Management tools include but are not limited to the following:

- Homeowner and landowner education
- Policy changes for structures and infrastructure in the WUI
- Homesite defensible zone through fuels modification
- Community defensible zone fuels alteration
- Access improvements
- Access creation
- Emergency response enhancements (training, equipment, locating new fire stations, new fire districts)
- Regional land management recommendations for private, state, and federal landowners

Maintaining private property rights will continue to be one of the guiding principles of this plan's implementation. Sound risk management is a foundation for all fire management activities. Risks and uncertainties relating to fire management activities must be understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing an activity. Net gains to the public benefit will be an important component of decisions.

### 5.3 WUI Safety & Policy

Wildfire mitigation efforts must be supported by a set of policies and regulations at the county level that maintain a solid foundation for safety and consistency. The recommendations enumerated here serve that purpose. Because these items are regulatory in nature, they will not necessarily be accompanied by cost estimates. These recommendations are policy related in nature and therefore are recommendations to the appropriate elected officials; debate and formulation of alternatives will serve to make these recommendations suitable and appropriate.

**Table 5.1. WUI Action Items in Safety and Policy.**

| <b>Action Item</b>  | <b>Goals and Objectives</b>   | <b>Responsible Organization</b>  | <b>Action Items &amp; Planning Horizon</b>   |
|---|---|--|--|
| <b>5.1.a: Amend existing building codes to apply equally to new single housing construction as it does to subdivisions.</b> | <b>Protection of people and structures</b> by applying a standard of road widths, access, and building regulations to insure new homes can be protected while curtailing risks to firefighters (defensible space, access mgmt, water systems, building codes, signage, and maintenance of private forest and range lands) | <b>County Commissioners</b> in cooperation with Cities of Craigmont, Kamiah, Nezperce, and Winchester, the Planning and Zoning Department and the Craigmont VFD, Kamiah VFD, Nezperce VFD, and the Winchester VFD. | <ul style="list-style-type: none"> <li>• Year 1 debate and adoption of revised code (2005-06).</li> <li>• Review adequacy of changes annually, make changes as needed.</li> </ul>  |
| <b>5.1.b: Rural Addressing Update</b>   | <b>Protection of people and structures</b> by improving database of structures in the county which will link to fire fighting efforts and improved response times. Also linked to developing an enhanced 911 system.  | Planning and Zoning in cooperation with the County Commissioners Office  | <ul style="list-style-type: none"> <li>• To be implemented during first year (2005), pending funding and adoption by elected officials. May take most of a year to complete.</li> <li>• Estimate cost at around \$45,000 to complete entire county.</li> </ul> |
| <b>5.1.c: Enhanced 911 Service</b>  | <b>Protection of people and structures</b> by improving the ability of emergency response personnel to respond to an emergency.   | <b>County Commissioners</b> in combination with County Sheriff's Office, County Assessor's Office, Craigmont VFD, Kamiah VFD, Nezperce VFD, and Winchester VFD.  | Can be completed only after the Rural Addressing project is completed. Target implementation during year 2 (2006-07 of this project.   |
| <b>5.1.d: Rural Signage (Road Signs &amp; Rural Fire District Boundary Signs) Improvements across the county</b>            | <b>Protection of people, structures, and infrastructure</b> by improving the ability of emergency services personnel, residents, and visitors to navigate roads.  | Highway Districts in cooperation with Cities of Craigmont, Kamiah, Nezperce, and Winchester, County Commissioners, Craigmont VFD, Kamiah VFD, Nezperce VFD, and the Winchester VFD.                                | Can be completed during year 1 (2005-06) pending funding to implement the project. Estimate \$15,000 for signs and posting.  |

**Table 5.1. WUI Action Items in Safety and Policy.**

| <b>Action Item</b>   | <b>Goals and Objectives</b>  | <b>Responsible Organization</b>  | <b>Action Items &amp; Planning Horizon</b>  |
|--|--|--|---|
| <b>5.1.e: Develop County policy concerning building materials used in high-risk WUI areas on existing structures and new construction (e.g., Kamiah, Forest, Winchester)</b> | <b>Protection of people and structures</b> by improving the ability of emergency response personnel to respond to threatened homes in high-risk areas. | Planning and Zoning in cooperation with County Commissioners Office, Cities of Craigmont, Kamiah, Nezperce, and Winchester, Craigmont VFD, Kamiah VFD, Nezperce VFD, and the Winchester VFD. | <b>Year 1 (2005) activity:</b> Consider and develop policy to address construction materials for homes and businesses located in high wildfire risk areas. Specifically, a County policy concerning wooden roofing materials and flammable siding, especially where juxtaposed near heavy wildland fuels. |
| <b>5.1.f: Develop a formal WUI Advisory Committee to advise County Commissioners on WUI Issues and Treatments</b>  | <b>Protection of people and structures</b> by improving the ability of decision makers to make informed decisions about wildfire issues.               | County Commissioners Office with Cities of Craigmont, Kamiah, Nezperce, and Winchester   | <b>Year 1 (2005) activity:</b> Formalize a committee, its membership and service decided on by the County Commissioners, to collaborate on WUI issues within Lewis County. Members potentially to include land management organizations and companies, private landowners, and fire protection personnel. |

## **5.4 People and Structures**

The protection of people and structures will be tied together closely as the loss of life in the event of a wildland fire is generally linked to a person who could not, or did not, flee a structure threatened by a wildfire. The other incident is a fire fighter who suffers the loss of life during the combating of a fire. Many of the recommendations in this section will define a set of criteria for implementation while others will be rather specific in extent and application.

Many of the recommendations in this section involve education and increasing awareness of the residents of Lewis County. These recommendations stem from a variety of factors including items that became obvious during the analysis of the public surveys, discussions during public meetings, and observations about choices made by residents living in the Wildland-Urban Interface. Over and over, the common theme was present that pointed to a situation of landowners not recognizing risk factors:

- Homeowners from Winchester, Kamiah, and Forest, in the public mail survey, ranked their homesite wildfire risk factors significantly lower than a random sample of home rankings completed by fire mitigation specialists
- Fire District personnel pointed to numerous examples of inadequate access to homes of people who believe they have adequate ingress
- Discussions with the general public indicated an awareness of wildland fire risk, but they could not generally identify risk factors

- A large number of the respondents to the public mail survey indicated (44%) that they want to participate in educational opportunities focused on the WUI and what they can do to increase their home's chances of surviving a wildfire.

Residents and policy makers of Lewis County should recognize certain factors that exist today, that in their absence would lead to an increase in the risk factors associated with wildland fires in the WUI of Lewis County. These items listed below should be encouraged, acknowledged, and recognized for their contributions to the reduction of wildland fire risks:

- **Livestock Grazing** in and around the communities of Lewis County has led to a reduction of many of the fine fuels that would have been found in and around the communities and in the wildlands of Lewis County. Domestic livestock not only eat these grasses, forbs, and shrubs, but also trample certain fuels to the ground where decomposition rates may increase. Livestock ranchers tend their stock, placing additional sets of eyes into the forests and rangelands of the county where they may observe ignitions, or potentially risky activities. Livestock grazing in this region should be encouraged in the future as a low cost, positive tool of wildfire mitigation in the Wildland-Urban Interface and in the wildlands.
- **Forest Management** in Lewis County has been affected greatly by the reduction of operating sawmills in the region. However, the active forest management program of the Idaho Department of Lands, the Nez Perce Tribe and many of the private and industrial forestland owners in the region has led to a significant reduction of wildland fuels where they are closest to homes and infrastructure. An excellent example of this has already been highlighted in this document involving the private management of forestlands around the community of Forest. In addition, forest resource professionals managing these lands, and the lands of the state and federal agencies are generally trained in wildfire protection and recognize risk factors when they occur. One of the reasons that Lewis County forestlands have not been impacted by wildland fires to a greater degree historically, is the presence and activities related to active forest management.
- **Agriculture** is a significant component of Lewis County's economy. Much of the rangeland interface is made up of a mosaic of agricultural crops, even extending to the forestland interface. The original conversion of these lands to agriculture from rangeland, was targeted at the most productive soils and juxtaposition to water. Many of these productive rangeland ecosystems were consequently also at some of the highest risk to wildland fires because biomass accumulations increased in these productive landscapes. The result today, is much of the rangeland historically prone to frequent fires, has been converted to agriculture, which is at a much lower risk than prior to its conversion. The preservation of a viable agricultural economy in Lewis County is integral to the continued management of wildfire risk in this region.

**Table 5.2. WUI Action Items for People and Structures.**

| <b>Action Item</b>   | <b>Goals and Objectives</b>   | <b>Responsible Organization</b>   | <b>Action Items, Planning Horizon and Estimated Costs</b>  |
|--|---|---|--|
| <b>5.2.a: Youth and Adult Wildfire Educational Programs</b>                | <b>Protect people and structures</b> by increasing awareness of WUI risks, how to recognize risk factors, and how to modify those factors to reduce risk  | Cooperative effort including: <ul style="list-style-type: none"> <li>University of Idaho Cooperative Extension</li> <li>Idaho Department of Lands</li> <li>State and Private Forestry Offices</li> <li>Bureau of Land Management</li> <li>Nez Perce Tribe</li> <li>Local School Districts</li> <li>Cities of Craigmont, Kamiah, Nezperce, and Winchester</li> <li>County Commissioners</li> </ul> | To start immediately using existing educational program materials and staffing. Formal needs assessment should be responsibility of University of Idaho Cooperative Extension faculty and include the development of an integrated WUI educational series by year 2 (2006-07) Costs initially to be funded through existing budgets for these activities to be followed with grant monies to continue the programs as identified in the formal needs assessment. |
| <b>5.2.b: Wildfire risk assessments of homes in identified communities</b> | <b>Protect people and structures</b> by increasing awareness of specific risk factors of individual homesites in the at-risk landscapes. Only after these are completed can homesite treatments follow. | To be implemented by County Commissioners Office in cooperation with Cities of Craigmont, Kamiah, Nezperce, and Winchester, Craigmont VFD, Kamiah VFD, Nezperce VFD, Winchester VFD, and Wildland Fire Protection Specialists. Actual work may be completed by Wildfire Mitigation Consultants.   | <ul style="list-style-type: none"> <li><b>Cost:</b> Approximately \$100 per homesite for inspection, written report, and discussions with the homeowners</li> <li><b>Action Item:</b> Secure funding and contract to complete the inspections during years 1 &amp; 2 (2005-06)</li> <li>Homesite inspection reports and estimated budget for each homesite's treatments will be a requirement to receive funding for treatments through grants.</li> </ul>       |
|  |   | <b>Kamiah Area</b>  | <ul style="list-style-type: none"> <li>Approximately 650 homes are in the rural areas of Kamiah with another 480 structures within the Kamiah City area. Approximately 60% of the rural structures and 30% of the structures in the city are in need of assessments and potentially home site asset protection zones, for a total of about 530 homes needing assessments. Estimated cost will be \$53,000.</li> </ul>  |
|  |   | <b>Forest Area</b>  | <ul style="list-style-type: none"> <li>Approximately 125 homes are in the rural areas around Forest (within the proposed Forest Fire Protection District). Approximately all of the structures are in need of assessments and potentially home site asset protection zones. Estimated cost will be \$12,500.</li> </ul>  |
|  |   | <b>Winchester Area</b>  | <ul style="list-style-type: none"> <li>The Student Conservation Association – Fire Education Corps completed home site assessments during 2004.</li> </ul>   |

**Table 5.2. WUI Action Items for People and Structures.**

| <b>Action Item</b>                    | <b>Goals and Objectives</b>   | <b>Responsible Organization</b>   | <b>Action Items, Planning Horizon and Estimated Costs</b>  |
|---------------------------------------|---|---|--|
| <b>5.2.c: Homesite WUI Treatments</b> | <b>Protect people, structures, and increase fire fighter safety</b> by reducing the risk factors surrounding homes in the WUI of Lewis County | <b>County Commissioners</b> in cooperation with Cities of Craigmont, Kamiah, Nezperce, and Winchester, and Fire Mitigation Consulting company | <ul style="list-style-type: none"> <li>Actual funding level will be based on the outcomes of the homesite assessments and cost estimates</li> <li><b>Estimate</b> that treatments in rangelands will cost approximately \$850 per homesite for a defensible space of roughly 150'.</li> <li>Estimate that treatments in forestland will cost roughly \$1,250 per homesite for a defensible space of about 200'.</li> <li>Homesite treatments can begin with the securing of funding for the treatments and immediate implementation in 2004 and will continue from year 1 through 5 (2008).</li> </ul> |
|                                       |   | <i>Complete concurrently with 5.4.b</i>   |  |
|                                       |   | <b>Kamiah Area</b>  | <ul style="list-style-type: none"> <li>Approximately 100 homes will receive assessments and be in need of asset protection zone construction (fuels treatments). Estimate an average cost \$1,500 per homesite in this area for a total estimated cost of \$150,000.</li> <li>The total assessed value of homes in this area is \$14.0 million for a Benefit-Cost Ratio of 93:1.</li> </ul>  |
|                                       |   | <b>Forest Area</b>  | <ul style="list-style-type: none"> <li>Approximately 25 homes are in the rural areas around Forest (proposed Forest Fire Protection District within Lewis County). Approximately all of the structures in need of treatments. Estimated cost will be \$37,500.</li> <li>The total assessed value of homes in this area is \$5.2 million for a Benefit-Cost Ratio of 138:1.</li> </ul>  |
|                                       |   | <b>Winchester Area</b>  | <ul style="list-style-type: none"> <li>Approximately 60 homes are in the rural areas around Winchester. Approximately all of the structures in need of treatments. Estimated cost will be \$90,000.</li> <li>The total assessed value of homes in this area is \$16.4 million for a Benefit-Cost Ratio of 182:1.</li> </ul>  |

Table 5.2. WUI Action Items for People and Structures.

| Action Item  | Goals and Objectives  | Responsible Organization   | Action Items, Planning Horizon and Estimated Costs   |
|--|---|--|--|
| <b>5.2.d: Community Defensible Zone WUI Treatments</b> | <b>Protect people, structures, and increase fire fighter safety</b> by reducing the risk factors surrounding high risk communities in the WUI of Lewis County | <b>County Commissioners</b> in cooperation with Cities of Craigmont, Kamiah, Nezperce, and Winchester, <b>Nez Perce Tribe and BLM</b> to identify funding availability and project implementation opportunities. | <ul style="list-style-type: none"> <li>Actual funding level will be based on the outcomes of the homesite assessments and cost estimates.</li> <li><b>Years 2-5 (2006-09):</b> Treat high risk wildland fuels from homesite defensible space treatments to an area extending 400 feet to 750 feet beyond home defensible spaces, where steep slopes and high accumulations of risky fuels exist near homes and infrastructure. Should link together home treatment areas. Treatments target high risk concentrations of fuels and not 100% of the area identified. To be completed only after or during the creation of home defensible spaces have been implemented.</li> <li><b>Communities and areas to target:</b> Kamiah, Forest, Winchester, Reubens. Others based on additional assessments.</li> <li>Approximate average cost on a per structure basis is \$1,500. When coupled with the home defensibility space costs of \$1,250, the <b>average B/C Ratio in forestland areas is 14.4:1.</b></li> </ul> |
| <b>5.2.e: Maintenance of Homesite WUI Treatments</b>   | <b>Protect people, structures, and increase fire fighter safety</b> by reducing the risk factors surrounding homes in the WUI of Lewis County.                | <b>County Commissioners Office</b> in cooperation with Cities of Craigmont, Kamiah, Nezperce, and Winchester, Craigmont VFD, Kamiah VFD, Nezperce VFD, Winchester VFD, and local home owners.                    | <ul style="list-style-type: none"> <li>Homesite defensibility treatments must be maintained periodically to sustain benefits of the initial treatments.</li> <li>Each site should be assessed 5 years following initial treatment</li> <li>Estimated re-inspection cost will be \$50 per homesite on all sites initially treated or recommended for future inspections</li> <li>Follow-up inspection reports with treatments as recommended years 5 through 10.</li> </ul>   |
| <b>5.2.f: Re-entry of Homesite WUI Treatments</b>      | <b>Protect people, structures, and increase fire fighter safety</b> by reducing the risk factors surrounding homes in the WUI of Lewis County.                | <b>County Commissioners Office</b> in cooperation with Cities of Craigmont, Kamiah, Nezperce, and Winchester, Craigmont VFD, Kamiah VFD, Nezperce VFD, Winchester VFD, and local home owners.                    | <ul style="list-style-type: none"> <li>Re-entry treatments will be needed periodically to maintain the benefits of the initial WUI home treatments. Each re-entry schedule should be based on the initial inspection report recommendations, observations, and changes in local conditions. Generally occurs every 5-10 years.</li> </ul>  |

**Table 5.2. WUI Action Items for People and Structures.**

| <b>Action Item</b>  | <b>Goals and Objectives</b>  | <b>Responsible Organization</b>   | <b>Action Items, Planning Horizon and Estimated Costs</b>  |
|---|--|---|--|
| <b>5.2.g: Access Improvements of bridges, cattle guards, and limiting road surfaces</b> | <b>Protection of people, structures, infrastructure, and economy</b> by improving access for residents and fire fighting personnel in the event of a wildfire. Reduces the risk of a road failure that leads to the isolation of people or the limitation of emergency vehicle and personnel access during an emergency. | <b>Highway Districts</b> in cooperation with the BLM, State of Idaho (Lands and Transportation), Nez Perce Tribe, and industrial forestland owners (e.g., Boise Corp.). Cooperation with County Commissioners and Cities of Craigmont, Kamiah, Nezperce, and Winchester | <ul style="list-style-type: none"> <li>• <b>Year 1 (2005):</b> Update existing assessment of travel surfaces, bridges, and cattle guards in Lewis County as to location. Secure funding for implementation of this project (grants)</li> <li>• <b>Year 2 (2006):</b> Conduct engineering assessment of limiting weight restrictions for all surfaces (e.g., bridge weight load maximums). Estimate cost of \$100,000 which might be shared between County, Nez Perce Tribe, BLM, State, and private based on landownership associated with road locations.</li> <li>• <b>Year 2 (2006):</b> Post weight restriction signs on all limiting crossings, copy information to rural fire districts and wildland fire protection agencies in affected areas. Estimate cost at roughly \$15-\$25,000 for signs and posting.</li> <li>• <b>Year 3 (2007):</b> Identify limiting road surfaces in need of improvements to support wildland fire fighting vehicles and other emergency equipment. Develop plan for improving limiting surfaces including budgets, timing, and resources to be protected for prioritization of projects (benefit/cost ratio analysis). Create budget based on full assessment.</li> </ul> |
| <b>5.2.h: Access Improvements for Kamiah</b>  | <b>Protection of people, structures, infrastructure, and economy</b> by improving access for residents and fire fighting personnel in the event of a wildfire. Allows for alternative escape routes when a primary access is compromised.  | <b>County Roads and Bridges Department</b> in cooperation with Nez Perce Tribe, BLM, State of Idaho (Lands and Transportation), and city of Kamiah and area landowners.   | <ul style="list-style-type: none"> <li>• <b>Year 1 (2005):</b> Update existing assessment of roads in Lewis County as to location. Secure funding for implementation of this project (grants).</li> <li>• <b>Year 2 (2006):</b> Specifically address access issues in Kamiah and others identified in assessment. Develop alternatives for improving access limitations. Landowners and agencies to play significant role in alternative development.</li> <li>• <b>Year 3 (2007):</b> Secure funding and implement projects to improve limiting access. No way to estimate costs until priorities are set and options identified.</li> </ul>  |

**Table 5.2. WUI Action Items for People and Structures.**

| <b>Action Item</b>   | <b>Goals and Objectives</b>  | <b>Responsible Organization</b>   | <b>Action Items, Planning Horizon and Estimated Costs</b>   |
|--|--|---|---|
| <b>5.2.i: Access Improvements through road-side fuels management</b> | <b>Protection of people, structures, infrastructure, and economy</b> by improving access for residents and fire fighting personnel in the event of a wildfire. Allows for a road based defensible area that can be linked to a terrain based defensible areas. | <b>County Roads and Bridges Department</b> in cooperation with Nez Perce Tribe, BLM, State of Idaho (Lands and Transportation), USFS, industrial forestland owners, County Commissioners and Cities of Craigmont, Kamiah, Nezperce, and Winchester. | <ul style="list-style-type: none"> <li>• <b>Year 1 (2005):</b> Update existing assessment of roads in Lewis County as to location. Secure funding for implementation of this project (grants).</li> <li>• <b>Year 2 (2006):</b> Specifically address access issues to Kamiah, Forest, Winchester, Reubens, and others identified in assessment, such as Highway 12 corridor. Identify forestland and rangeland fuels difficult to control during wildfire that would also respond well to thinning, pruning, and brush cutting (hand pile and burn or chip), while increasing ingress and egress use in wildfire emergencies. Target 100' on downhill side of roads and 75' on uphill side for estimated cost of \$15,000 per mile of road treated. If 10 miles of roadway are prioritized for treatment (est.) <b>B/C Ratio of 14.7:1 is achieved.</b> This B/C ratio may be maintained in many rural treatment areas of the county.</li> <li>• <b>Year 3 (2007):</b> Secure funding and implement projects to treat road-side fuels.</li> </ul> |

## 5.5 *Infrastructure*

Significant infrastructure refers to the communications, transportation (road and rail networks), energy transport supply systems (gas and power lines), and water supply that service a region or a surrounding area. All of these components are important to the North Central Idaho Area, and to Lewis County specifically. These networks are by definition a part of the Wildland-Urban Interface in the protection of people, structures, **infrastructure**, and unique ecosystems. Without supporting infrastructure a community's structures may be protected, but the economy and way of life lost. As such, a variety of components will be considered here in terms of management philosophy, potential policy recommendations, and recommendations.

**Communication Infrastructure:** This component of the WUI seems to be diversified across the county with multiple source and destination points, and a spread-out support network. Although site specific treatments will impact directly local networks, little needs done to insure the system's viability.

Emergency services radio communications have been aided by a network of communications towers in the county. In the past communications along US Highway 95 from Winchester to Culdesac have been problematic. The addition of a communications tower near Winchester to serve this canyon was made a priority early in this planning process. In October 2004, the Idaho Bureau of Homeland Security provided a grant to the Lewis County Sheriff's office to install this communications tower.

**Transportation Infrastructure (road and rail networks):** This component of the WUI has some significant potential limitations in Lewis County. U.S. Highway 95, which dissects Lewis County, is the primary maintained route linking north and south Idaho. Thus, most intrastate traffic flowing north to south or vice versa travels through the County. The section of this roadway known as the Winchester Grade between the Reubens Road and Culdesac is characterized by a fairly steep, winding grade bordered abruptly by timbered slopes. Recent improvements to the grade have resulted in wider shoulders and more turnouts and passing lanes. However, significant tree mortality due to past wildfire activity on the eastern slope of the canyon reiterates the need for mitigation measures to ensure the protection of this indispensable infrastructure.

U.S. Highway 12, which connects communities along the Clearwater River to the city of Lewiston, establishes the eastern boundary of Lewis County. This part of the roadway was carved from the lower canyon walls mimicking the path of the river. Currently, much of this corridor is very narrow with few turnouts or passing lanes. In addition to being a hauling route for many area truckers, U.S. Highway 12 is also part of the Clearwater Canyon Scenic Route and the Lewis and Clark Trail. Recreational traffic increases significantly during the summer months. Ignitions along the Clearwater River corridor have the potential to become large wildland fires threatening many lives and structures.

Other roads in the county have limiting characteristics, such as steep grades, narrow travel surfaces, sharp turning radii, low load limit bridges and cattle guards, and heavy accumulations of fuels adjacent to, and overtopping some roads. Some of these road surfaces access remote forestland and rangeland areas. While their improvements will facilitate access in the case of a wildfire, they are not the priority for treatments in the county. Roads that have these inferior characteristics and access homes and businesses are the priority for improvements in the county.

The Camas Prairie Railroad that historically transported grain, goods, and other materials between Grangeville and Lewiston passes through Lewis County along nearly the same path as U.S. Highway 95. Currently, this railway is inactive; however, there are plans to reopen a

section of this track. Although not encompassed by the borders of Lewis County, an active branch of the Camas Prairie Railroad travels along the eastern shore of the Clearwater River and therefore impacts the economy of Lewis County.

**Energy Transport Supply Systems (gas and power lines):** A number of power lines crisscross Lewis County. Unfortunately, many of these power lines cross over forestland ecosystems. When fires ignite in these vegetation types, the fires tend to be slower moving and burn at relatively high intensities. Additionally, there is a potential for high temperatures and low humidity with high winds to produce enough heat and smoke to threaten power line stability. Most power line corridors have been cleared of vegetation both near the wires and from the ground below. Observations across the county of these high tension power lines lead to the conclusion that current conditions coupled with urban developments have mitigated this potential substantially. It is the recommendation of this Wildfire Mitigation Plan that this situation be evaluated annually and monitored but that treatments not be specifically targeted at this time. The use of these areas as “fire breaks” should be evaluated further, especially in light of the treatments enumerated in this plan (eg., intensive livestock grazing, mechanical treatments, and herbicide treatments).

**Water Supply:** In many of Idaho’s communities, water is derived from surface flow that is treated and piped to homes and businesses. When wildfires burn a region, they threaten these watersheds by the removal of vegetation, creation of ash and sediment. As such, watersheds should be afforded the highest level of protection from catastrophic wildfire impacts. In Lewis County, water is supplied to many homes by single home or multiple home wells. However, the community of Kamiah depends on a surface water resource as one of its primary water sources.

## **5.6 Resource and Capability Enhancements**

There are a number of resource and capability enhancements identified by the rural and wildland fire fighting districts in Lewis County. All of the needs identified by the districts are in line with increasing the ability to respond to emergencies in the WUI and are fully supported by the planning committee.

Specific repeated themes of needed resources and capabilities include:

- More water tenders and newer engines for Rural Fire Districts
- Improved radio capabilities within each district and for mutual aid operations
- Retention and recruitment of volunteers
- Training and development of rural firefighters in structure and wildland fire
- New facilities (fire stations) for housing existing equipment (Craigmont VFD) and forward advancing equipment and personnel to areas experiencing population growth (Nez Perce VFD).
- Formation of 3 new fire districts to cover new areas
- Extensions of 3 current districts to cover new areas

Although additional, and specific, needs were enumerated by the districts in Lewis County, these items were identified by multiple districts and in the public meetings. The implementation of each issue will rely on either the isolated efforts of the rural fire districts or a concerted effort by the county to achieve equitable enhancements across all of the districts. Given historic trends, individual departments competing against neighboring departments for grant monies and equipment will not necessarily achieve county wide equity. However, the Clearwater Resource

Conservation and Development Council, Inc., may be an organization uniquely suited to work with all of the districts in Lewis County and adjacent counties to assist in the prioritization of needs across district and even county lines. Once prioritized, the Clearwater RC&D is in a position to assist these districts with identifying, competing for, and obtaining grants and equipment to meet these needs.

**Table 5.3. WUI Action Items in Fire Fighting Resources and Capabilities.**

| <b>Action Item</b>   | <b>Goals and Objectives</b>   | <b>Responsible Organization</b>   | <b>Action Items &amp; Planning Horizon</b>   |
|--|---|---|--|
| <b>5.3.a: Facilities, land, business plan, and basic supplies for new fire protection districts.</b>   | <b>Protection of people and structures</b> by direct fire fighting capability enhancements. | Lewis County Commissioners, Clearwater RC&D, Cities of Craigmont, Kamiah, Nezperce, and Winchester, and local residents   | <ul style="list-style-type: none"> <li>• Estimate of Costs: <ul style="list-style-type: none"> <li>◦ \$500,000 each</li> </ul> </li> <li>• 2 Year Planning Horizon</li> <li>• <b>Forest Rural</b></li> <li>• <b>Northwest Lewis County Rural</b></li> <li>• <b>Central Ridge Rural</b></li> </ul>                            |
| <b>5.3.b: Facilities, land, business plan, and basic supplies for extending rural fire protection districts.</b>   | <b>Protection of people and structures</b> by direct fire fighting capability enhancements. | Lewis County Commissioners, Cities of Craigmont, Kamiah, Nezperce, and Winchester, Clearwater RC&D, local residents, Craigmont VFD, Kamiah VFD, Nezperce VFD, and the Winchester VFD.                     | <ul style="list-style-type: none"> <li>• Estimate of Costs: <ul style="list-style-type: none"> <li>◦ \$250,000 each</li> </ul> </li> <li>• 2 Year Planning Horizon</li> <li>• <b>Nezperce Rural Fire Extension</b></li> <li>• <b>Kamiah Rural Fire Extension</b></li> <li>• <b>Greer Rural Fire Extension</b></li> </ul>     |
| <b>5.3.c: Obtain 5,000 gallon water tenders for rural fire districts (4).</b>  | <b>Protection of people and structures</b> by direct fire fighting capability enhancements. | <b>Clearwater RC&amp;D</b> in cooperation with Craigmont VFD, Kamiah VFD, Nezperce VFD, Winchester VFD, IDL, USFS, Lewis County Commissioners, and Cities of Craigmont, Kamiah, Nezperce, and Winchester. | <ul style="list-style-type: none"> <li>• <b>Year 1 (2005):</b> Verify stated need still exists, develop budget, and locate funding or equipment (surplus) sources.</li> <li>• <b>Year 1 or 2 (2005-06):</b> Acquire and deliver needed equipment to districts based on prioritization by need and funding awards.</li> </ul> |
| <b>5.3.d: Enhance radio availability in each district, link in to existing dispatch, and improve range within the region, conversion to consistent standard of radio types</b> | <b>Protection of people and structures</b> by direct fire fighting capability enhancements. | <b>Clearwater RC&amp;D</b> in cooperation with Craigmont VFD, Kamiah VFD, Nezperce VFD, Winchester VFD, IDL, USFS, Lewis County Commissioners, and Cities of Craigmont, Kamiah, Nezperce, and Winchester. | <ul style="list-style-type: none"> <li>• <b>Year 1 (2005):</b> Summarize existing two-way radio capabilities and limitations. Identify costs to upgrade existing equipment and locate funding opportunities.</li> <li>• <b>Year 2 (2006):</b> Acquire and install upgrades as needed.</li> </ul>                             |

**Table 5.3. WUI Action Items in Fire Fighting Resources and Capabilities.**

| <b>Action Item</b>  | <b>Goals and Objectives</b>   | <b>Responsible Organization</b>  | <b>Action Items &amp; Planning Horizon</b>   |
|---|---|--|--|
| <b>5.3.e: Retention of Volunteer Fire Fighters</b>  | <b>Protection of people and structures</b> by direct fire fighting capability enhancements. | County Commissioners, Cities of Craigmont, Kamiah, Nezperce, and Winchester, Craigmont VFD, Kamiah VFD, Nezperce VFD, Winchester VFD, IDL, and USFS working with broad base of county citizenry to identify options, determine plan of action, and implement it. | <ul style="list-style-type: none"> <li>• 5 Year Planning Horizon, extended planning time frame</li> <li>• Target an increased recruitment (+10%) and retention (+20% longevity) of volunteers</li> <li>• <b>Year 1 (2005):</b> Develop incentives program and implement it.</li> </ul>   |
| <b>5.4.f: Increased training and capabilities of fire fighters</b>  | <b>Protection of people and structures</b> by direct fire fighting capability enhancements. | Craigmont VFD, Kamiah VFD, Nezperce VFD, and Winchester VFD working with the BLM, IDL, and USFS for wildland training opportunities and with the State Fire Marshall's Office for structural fire fighting training.   | <ul style="list-style-type: none"> <li>• <b>Year 1 (2005):</b> Develop a multi-county training schedule that extends 2 or 3 years in advance (continuously).</li> <li>• Identify funding and resources needed to carry out training opportunities and sources of each to acquire.</li> <li>• Year 1 (2005): Begin implementing training opportunities for volunteers.</li> </ul> |
| <b>5.4.g. Develop Mutual Aid Agreements between all Rural Fire Districts and the Federal and State wildfire fighting agencies working in and around Lewis County.</b> | <b>Protection of people and structures</b> by direct fire fighting capability enhancements. | Cities of Craigmont, Kamiah, Nezperce, and Winchester, Craigmont VFD, Kamiah VFD, Nezperce VFD, Winchester VFD, BLM, USFS, BIA, IDL, State Fire Marshall's Office.   | <ul style="list-style-type: none"> <li>• 2005: Identify current mutual aid agreements and needed agreements.</li> <li>• Draft and implement agreements across the county.</li> </ul>   |

## **5.7 Regional Land Management Recommendations**

Reference has been given to the role that forestry, grazing and agriculture have in promoting wildfire mitigation services through active management. Lewis County is a rural county by any measure. It is dominated by wide expanses of forest and rangelands intermixed with communities and rural houses.

Wildfires will continue to ignite and burn depending on the weather conditions and other factors enumerated earlier. However, active land management that modifies fuels, promotes healthy range and forestland conditions, and promotes the use of these natural resources (consumptive and non-consumptive) will insure that these lands have value to society and the local region. We encourage the Bureau of Land Management, US Forest Service, the Nez Perce Tribe, the Idaho Department of Lands, Industrial forestland owners, private forestland owners, and all agricultural landowners in the region to actively manage their Wildland-Urban Interface lands in a manner consistent with the management of reducing fuels and risks in this zone.

## Chapter 6: Supporting Information

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## 6.3 List of Preparers

The following personnel participated in the formulation, compilation, editing, and analysis of alternatives for this assessment.

**Table 6.1. List of Preparers**

| <b>Name</b>                 | <b>Affiliation</b>         | <b>Role</b>  |
|-----------------------------|----------------------------|--|
| William E. Schlosser, Ph.D. | Northwest Management, Inc. | <b>Lead Author</b> , Project Co-Manager, GIS Analyst, Natural Resource Economist, Hazard Mitigation Specialist, Regional Planner |
| Toby R. Brown, B.S.         | Northwest Management, Inc. | Natural Resource Manager, Project Co-Manager, Hazard Mitigation Specialist   |
| Vincent P. Corrao, B.S.     | Northwest Management, Inc. | Resource Management Specialist, Deputy Project Manager   |
| John A. Erixson, M.S.       | Northwest Management, Inc. | Range Management, Fire Specialist  |
| Dennis S. Thomas            | Northwest Management, Inc. | Fire & Fuels Specialist, Prescribed Burning Manager  |
| Ken Homik, M.S.             | Northwest Management, Inc. | Fire Use & Air Quality Specialist  |
| Tera Duman, B.S.            | Northwest Management, Inc. | Natural Resource Manager, Fire Control Technician  |
| Vaiden E. Bloch, M.S.       | Northwest Management, Inc. | GIS Analyst  |
| Greg Bassler, M.S.          | Northwest Management, Inc. | Roads Engineer, Timber Sale Layout & Harvest Manager   |
| Chris Terwilliger, B.S.     | Northwest Management, Inc. | Resource Manager   |

## 6.4 Signature Pages

### 6.4.1 Cooperators

This **Lewis County All Hazards Mitigation Plan** has been developed in cooperation and collaboration with the representatives of the following organizations, agencies, and individuals.

  
By: Joe Leitch, Chairperson  
Lewis County Commissioner


12/13/04  
Date

  
By: Charles Doty  
Lewis County Commissioner

12/13/04  
Date

  
By: LeAnn Trautman  
Lewis County Commissioner

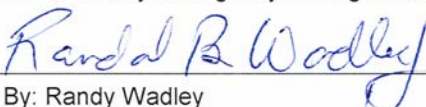
12-13-04  
Date

  
By: Ron Werhan  
Lewis County Planning and Zoning

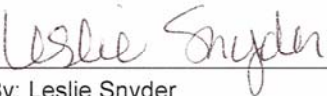
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Date

  
By: Doug Shaller  
Lewis County Emergency Management

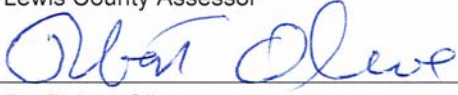
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By: Randy Wadley  
Lewis County Sheriff

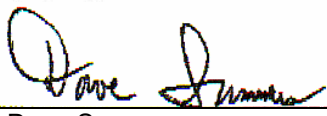
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Date

  
By: Leslie Snyder  
Lewis County Assessor

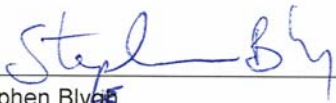
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Date

  
By: Robert Olive  
Mayor, City of Kamiah

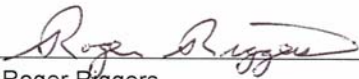
12-30-04  
Date

  
By: Dave Summers  
Resource Supervisor / Fire Warden  
Idaho Department of Lands, Kamiah

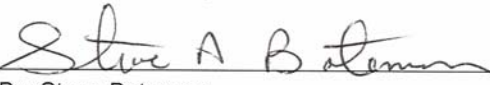
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Mayor, City of Winchester

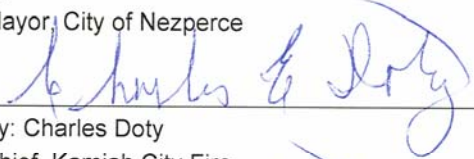
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Mayor, City of Craigmont

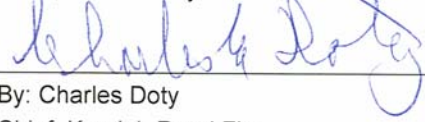
12/31/04  
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By: Steve Bateman  
Mayor, City of Nezperce

12-20-04  
Date

  
By: Charles Doty  
Chief, Kamiah City Fire

12/13/04  
Date

  
By: Charles Doty  
Chief, Kamiah Rural Fire

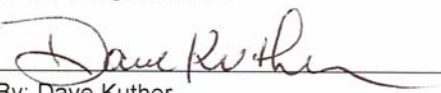
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By: Walter (Jody) Howard  
Chief, Winchester Fire

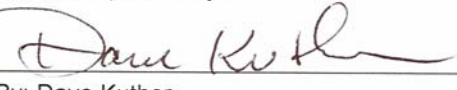
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By: Craig Leigh  
Chief, Craigmont Fire

12/31/04  
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By: Dave Kuther  
Chief, Nezperce City Fire

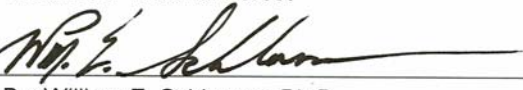
12/29/04  
Date

  
By: Dave Kuther  
Chief, Nezperce Rural Fire

12/29/04  
Date

  
By: Larry Dawson  
Forest Supervisor  
Clearwater National Forest

Date 12/14/04

  
By: William E. Schlosser, Ph.D.  
Project Manager-Lewis County Hazard Mitigation Plan,  
Lead Author, Northwest Management, Inc.

13 Dec '04  
Date

## 6.4.2 Resolution of Adoption by Lewis County Commissioners

### Resolution of the Commissioners of Lewis County, Idaho

# 2005-10

A resolution of the Commissioners of Lewis County declaring County support and adoption of the Lewis County All Hazards Mitigation Plan, which includes the Wildland-Urban Interface Wildfire Mitigation Plan.

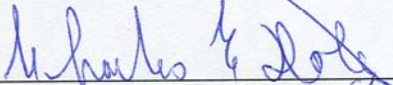
Whereas, The Board of Lewis County Commissioners supports the Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan, and

Whereas, The Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan will be utilized as a guide for planning as related to FEMA Pre-Disaster Mitigation, The National Fire Plan, The Healthy Forest Restoration Act, and other purposes as deemed appropriate by the Lewis County Commissioners,

Therefore be it resolved, that the Lewis County Commissioners do hereby adopt, support, and will facilitate the Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan's implementation.


Passed and approved this 27 Day of June 2005

Board of County Commissioners  
Lewis County, Idaho

  
By: Charles E. Doty, Chairman  
Lewis County Board of Commissioners

  
By: LeAnn J. Trautman  
Lewis County Board of Commissioners

  
By: Carroll A. Keith  
Lewis County Board of Commissioners

  
Attested by:  
Cathy Larson, Clerk

### **6.4.3 Representatives of City Government in Lewis County**

This All Hazards Mitigation Plan and all of its components identified herein were adopted formally through individual resolutions passed by each city government herein listed.

**6.4.3.1 Resolution of the City Council of Kamiah**

**Resolution of the City Council of Kamiah  
located in Lewis County, Idaho**

# 2005-2

A resolution of the City Council of Kamiah declaring City support and adoption of the Lewis County All Hazards Mitigation Plan, which includes the Wildland-Urban Interface Wildfire Mitigation Plan.

Whereas, The City Council of Kamiah supports the Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan, and

Whereas, The City Council of Kamiah has participated in the development of the Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan, and

Whereas, The Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan will be utilized as a guide for planning as related to FEMA Pre-Disaster Mitigation, The National Fire Plan, The Healthy Forest Restoration Act, and other purposes as deemed appropriate by the City Council of Kamiah,

Therefore be it resolved, that the City Council of Kamiah does hereby adopt, support, and will facilitate the Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan's implementation.

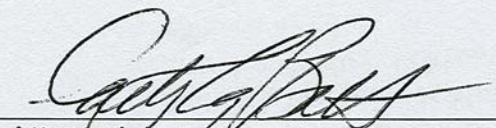
Passed and approved this 29<sup>th</sup> Day of June 2005

City Council of Kamiah located in Lewis County, Idaho



By: Robert Olive

Mayor, City of Kamiah



Attested by:

Cathy LaBatt, City Clerk

#### 6.4.3.2 Resolution of the City Council of Nezperce

### Resolution of the City Council of Nezperce located in Lewis County, Idaho

# 2005-01

A resolution of the City Council of Nezperce declaring City support and adoption of the Lewis County All Hazards Mitigation Plan, which includes the Wildland-Urban Interface Wildfire Mitigation Plan.

Whereas, The City Council of Nezperce supports the Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan, and

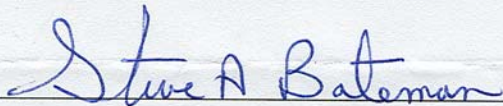
Whereas, The City Council of Nezperce has participated in the development of the Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan, and

Whereas, The Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan will be utilized as a guide for planning as related to FEMA Pre-Disaster Mitigation, The National Fire Plan, The Healthy Forest Restoration Act, and other purposes as deemed appropriate by the City Council of Nezperce,

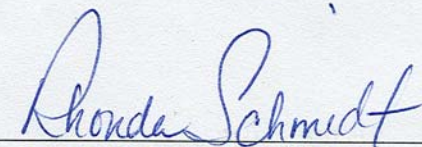
Therefore be it resolved, that the City Council of Nezperce does hereby adopt, support, and will facilitate the Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan's implementation.

Passed and approved this 22 Day of June 2005

City Council of Nezperce located in Lewis County, Idaho



By: Steve Bateman  
Mayor, City of Nezperce



Attested by:  
Rhonda Schmidt, City Clerk

#### 6.4.3.3 Resolution of the City Council of Winchester

### Resolution of the City Council of Winchester located in Lewis County, Idaho

# 2005-01

A resolution of the City Council of Winchester declaring City support and adoption of the Lewis County All Hazards Mitigation Plan, which includes the Wildland-Urban Interface Wildfire Mitigation Plan.

Whereas, The City Council of Winchester supports the Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan, and

Whereas, The City Council of Winchester has participated in the development of the Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan, and

Whereas, The Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan will be utilized as a guide for planning as related to FEMA Pre-Disaster Mitigation, The National Fire Plan, The Healthy Forest Restoration Act, and other purposes as deemed appropriate by the City Council of Winchester,

Therefore be it resolved, that the City Council of Winchester does hereby adopt, support, and will facilitate the Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan's implementation.

Passed and approved this 23<sup>rd</sup> Day of June 2005

City Council of Winchester located in Lewis County, Idaho

Stephen Bly  
By: Stephen Bly  
Mayor, City of Winchester

LeAnn J. Trautman  
Attested by:  
LeAnn Trautman, City Clerk



#### 6.4.3.4 Resolution of the City Council of Craigmont

### **Resolution of the City Council of Craigmont located in Lewis County, Idaho**

#2

A resolution of the City Council of Craigmont declaring City support and adoption of the Lewis County All Hazards Mitigation Plan, which includes the Wildland-Urban Interface Wildfire Mitigation Plan.

Whereas, The City Council of Craigmont supports the Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan, and

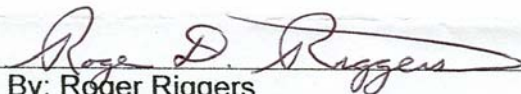
Whereas, The City Council of Craigmont has participated in the development of the Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan, and

Whereas, The Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan will be utilized as a guide for planning as related to FEMA Pre-Disaster Mitigation, The National Fire Plan, The Healthy Forest Restoration Act, and other purposes as deemed appropriate by the City Council of Craigmont,

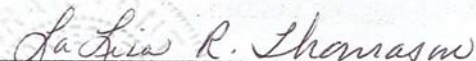
Therefore be it resolved, that the City Council of Craigmont does hereby adopt, support, and will facilitate the Lewis County All Hazards Mitigation Plan and the Wildland-Urban Interface Wildfire Mitigation Plan's implementation.

Passed and approved this 23rd Day of June 2005.

City Council of Craigmont located in Lewis County, Idaho.



By: Roger Riggers  
Mayor, City of Craigmont



Attested by:  
LaLisa Thomason, City Clerk

## 6.5 Glossary of Terms

**Anadromous** - Fish species that hatch in fresh water, migrate to the ocean, mature there, and return to fresh water to reproduce (Salmon & Steelhead).

**Appropriate Management Response** - Specific actions taken in response to a wildland fire to implement protection and fire use objectives.

**Biological Assessment** - Information document prepared by or under the direction of the Federal agency in compliance with U.S. Fish and Wildlife standards. The document analyzes potential effects of the proposed action on listed and proposed threatened and endangered species and proposed critical habitat that may be present in the action area.

**Backfiring** - When attack is indirect, intentionally setting fire to fuels inside the control line to contain a rapidly spreading fire. Backfiring provides a wide defense perimeter, and may be further employed to change the force of the convection column.

**Blackline** - Denotes a condition where the fire line has been established by removal of vegetation by burning.

**Burning Out** - When attack is direct, intentionally setting fire to fuels inside the control line to strengthen the line. Burning out is almost always done by the crew boss as a part of line construction; the control line is considered incomplete unless there is no fuel between the fire and the line.

**Canyon Grassland** - Ecological community in which the prevailing or characteristic plants are grasses and similar plants extending from the canyon rim to the rivers edge.

**Confine** - Confinement is the strategy employed in appropriate management responses where a fire perimeter is managed by a combination of direct and indirect actions and use of natural topographic features, fuel, and weather factors.

**Contingency Plans:** Provides for the timely recognition of approaching critical fire situations and for timely decisions establishing priorities to resolve those situations.

**Control Line** - An inclusive term for all constructed or natural fire barriers and treated fire edge used to control a fire.

**Crew** - An organized group of firefighters under the leadership of a crew boss or other designated official.

**Crown Fire** - A fire that advances from top to top of trees or shrubs more or less independently of the surface fire. Sometimes crown fires are classed as either running or dependent, to distinguish the degree of independence from the surface fire.

**Disturbance** - An event which affects the successional development of a plant community (examples: fire, insects, windthrow, timber harvest).

**Disturbed Grassland** - Grassland dominated by noxious weeds and other exotic species. Greater than 30% exotic cover.

**Diversity** - The relative distribution and abundance of different plant and animal communities and species within an area.

**Drainage Order** - Systematic ordering of the net work of stream branches, ( e.g., each non-branching channel segment is designated a first order stream, streams which only receive first order segments are termed second order streams).

**Duff** - The partially decomposed organic material of the forest floor beneath the litter of freshly fallen twigs, needles, and leaves.

**Ecosystem** - An interacting system of interdependent organisms and the physical set of conditions upon which they are dependent and by which they are influenced.

**Ecosystem Stability** - The ability of the ecosystem to maintain or return to its steady state after an external interference.

**Ecotone** - The area influenced by the transition between plant communities or between successional stages or vegetative conditions within a plant community.

**Energy Release Component** - The Energy Release Component is defined as the potential available energy per square foot of flaming fire at the head of the fire and is expressed in units of BTUs per square foot.

**Equivalent Clearcut Area (ECA)** - An indicator of watershed condition, which is calculated from the total amount of crown removal that has occurred from harvesting, road building, and other activities based on the current state of vegetative recovery.

**Exotic Plant Species** - Plant species that are introduced and not native to the area.

**Fire Adapted Ecosystem** - An arrangement of populations that have made long-term genetic changes in response to the presence of fire in the environment.

**Fire Behavior** - The manner in which a fire reacts to the influences of fuel, weather, and topography.

**Fire Behavior Forecast** - Fire behavior predictions prepared for each shift by a fire behavior analysis to meet planning needs of fire overhead organization. The forecast interprets fire calculations made, describes expected fire behavior by areas of the fire, with special emphasis on personnel safety, and identifies hazards due to fire for ground and aircraft activities.

**Fire Behavior Prediction Model** - A set of mathematical equations that can be used to predict certain aspects of fire behavior when provided with an assessment of fuel and environmental conditions.

**Fire Danger** - A general term used to express an assessment of fixed and variable factors such as fire risk, fuels, weather, and topography which influence whether fires will start, spread, and do damage; also the degree of control difficulty to be expected.

**Fire Ecology** - The scientific study of fire's effects on the environment, the interrelationships of plants, and the animals that live in such habitats.

**Fire Exclusion** - The disruption of a characteristic pattern of fire intensity and occurrence (primarily through fire suppression).

**Fire Intensity Level** - The rate of heat release (BTU/second) per unit of fire front. Four foot flame lengths or less are generally associated with low intensity burns and four to six foot flame lengths generally correspond to "moderate" intensity fire effects. High intensity flame lengths are usually greater than eight feet and pose multiple control problems.

**Fire Prone Landscapes** - The expression of an area's propensity to burn in a wildfire based on common denominators such as plant cover type, canopy closure, aspect, slope, road density, stream density, wind patterns, position on the hillside, and other factors.

**Fireline** - A loose term for any cleared strip used in control of a fire. That portion of a control line from which flammable materials have been removed by scraping or digging down to the mineral soil.

**Fire Management** - The integration of fire protection, prescribed fire and fire ecology into land use planning, administration, decision making, and other land management activities.

**Fire Management Plan (FMP)** - A strategic plan that defines a program to manage wildland and prescribed fires and documents the fire management program in the approved land use plan. This plan is supplemented by operational procedures such as preparedness, preplanned dispatch, burn plans, and prevention. The fire implementation schedule that documents the fire management program in the approved forest plan alternative.

**Fire Management Unit (FMU)** - Any land management area definable by objectives, topographic features, access, values-to-be-protected, political boundaries, fuel types, or major fire regimes, etc., that set it apart from management characteristics of an adjacent unit. FMU's are delineated in FMP's. These units may have dominant management objectives and preselected strategies assigned to accomplish these objectives.

**Fire Occurrence** - The number of wildland fires started in a given area over a given period of time. (Usually expressed as number per million acres.)

**Fire Prevention** - An active program in conjunction with other agencies to protect human life, prevent modification, of the ecosystem by human-caused wildfires, and prevent damage to cultural resources or physical facilities. Activities directed at reducing fire occurrence, including public education, law enforcement, personal contact, and reduction of fire risks and hazards.

**Fire Regime** - The fire pattern across the landscape, characterized by occurrence interval and relative intensity. Fire regimes result from a unique combination of climate and vegetation. Fire regimes exist on a continuum from short-interval, low-intensity (stand maintenance) fires to long-interval, high-intensity (stand replacement) fires.

**Fire Retardant** - Any substance that by chemical or physical action reduces flareability of combustibles.

**Fire Return Interval** - The number of years between two successive fires documented in a designated area.

**Fire Risk** - The potential that a wildfire will start and spread rapidly as determined by the presence and activities of causative agents.

**Fire Severity** - The effects of fire on resources displayed in terms of benefit or loss.

**Foothills Grassland** - Grass and forb co-dominated dry meadows and ridges. Principle habitat type series: bluebunch wheatgrass and Idaho fescue.

**Fuel** - The materials which are burned in a fire; duff, litter, grass, dead branchwood, snags, logs, etc.

**Fuel Break** - A natural or manmade change in fuel characteristics which affects fire behavior so that fires burning into them can be more readily controlled.

**Fuel Loading** - Amount of dead fuel present on a particular site at a given time; the percentage of it available for combustion changes with the season.

**Fuel Model** - Characterization of the different types of wildland fuels (trees, brush, grass, etc.) and their arrangement, used to predict fire behavior.

**Fuel Type** - An identifiable association of fuel elements of distinctive species; form, size, arrangement, or other characteristics, that will cause a predictable rate of fire spread or difficulty of control, under specified weather conditions.

**Fuels Management** - Manipulation or reduction of fuels to meet protection and management objectives, while preserving and enhancing environmental quality.

**Gap Analysis Program (GAP)** - Regional assessments of the conservation status of native vertebrate species and natural land cover types and to facilitate the application of this information to land management activities. This is accomplished through the following five objectives:

1. Map the land cover of the United States
2. Map predicted distributions of vertebrate species for the U.S.
3. Document the representation of vertebrate species and land cover types in areas managed for the long-term maintenance of biodiversity
4. Provide this information to the public and those entities charged with land use research, policy, planning, and management
5. Build institutional cooperation in the application of this information to state and regional management activities

**Habitat** - A place that provides seasonal or year-round food, water, shelter, and other environmental conditions for an organism, community, or population of plants or animals.

**Heavy Fuels** - Fuels of a large diameter, such as snags, logs, and large limbwood, which ignite and are consumed more slowly than flash fuels.

**Hydrologic Unit Code** - A coding system developed by the U. S. Geological Service to identify geographic boundaries of watersheds of various sizes.

**Hydrophobic** - Resistance to wetting exhibited by some soils, also called water repellency. The phenomena may occur naturally or may be fire-induced. It may be determined by water drop penetration time, equilibrium liquid-contact angles, solid-air surface tension indices, or the characterization of dynamic wetting angles during infiltration.

**Human-Caused Fires** - Refers to fires ignited accidentally (from campfires or smoking) and by arsonists; does not include fires ignited intentionally by fire management personnel to fulfill approved, documented management objectives (prescribed fires).

**Intensity** - The rate of heat energy released during combustion per unit length of fire edge.

**Inversion** - Atmospheric condition in which temperature increases with altitude.

**Ladder Fuels** - Fuels which provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help initiate and assure the continuation of crowning.

**Landsat Imagery** - Land remote sensing, the collection of data which can be processed into imagery of surface features of the Earth from an unclassified satellite or satellites.

**Landscape** - All the natural features such as grasslands, hills, forest, and water, which distinguish one part of the earth's surface from another part; usually that portion of land which the eye can comprehend in a single view, including all its natural characteristics.

**Lethal** - Relating to or causing death; extremely harmful.

**Lethal Fires** - A descriptor of fire response and effect in forested ecosystems of high-severity or severe fire that burns through the overstory and understory. These fires typically consume large woody surface fuels and may consume the entire duff layer, essentially destroying the stand.

**Litter** - The top layer of the forest floor composed of loose debris, including dead sticks, branches, twigs, and recently fallen leaves or needles, little altered in structure by decomposition.

**Maximum Manageable Area** - The boundary beyond which fire spread is completely unacceptable.

**Metavolcanic** - Volcanic rock that has undergone changes due to pressure and temperature.

**Minimum Impact Suppression Strategy (MIST)** - “Light on the Land.” Use of minimum amount of forces necessary to effectively achieve the fire management protection objectives consistent with land and resource management objectives. It implies a greater sensitivity to the impacts of suppression tactics and their long-term effects when determining how to implement an appropriate suppression response.

**Mitigation** - Actions to avoid, minimize, reduce, eliminate, replace, or rectify the impact of a management practice.

**Monitoring Team** - Two or more individuals sent to a fire to observe, measure, and report its behavior, its effect on resources, and its adherence to or deviation from its prescription.

**National Environmental Policy Act (NEPA)** - This act declared a national policy to encourage productive and enjoyable harmony between humans and their environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and will stimulate the health and welfare of humankind; to enrich the understanding of important ecological systems and natural resources; and to establish a Council on Environmental Quality.

**National Fire Management Analysis System (NFMAS)** - The fire management analysis process, which provides input to forest planning and forest and regional fire program development and budgeting.

**Native** - Indigenous; living naturally within a given area.

**Natural Ignition** - A wildland fire ignited by a natural event such as lightning or volcanoes.

**Noncommercial Thinning** - Thinning by fire or mechanical methods of precommercial or commercial size timber, without recovering value, to meet MFP standards relating to the protection/enhancement of adjacent forest or other resource values.

**Notice of Availability** - A notice of Availability published in the Federal Register stating that an EIS has been prepared and is available for review and comment (for draft) and identifying where copies are available.

**Notice of Intent** - A notice of Intent published in the Federal Register stating that an EIS will be prepared and considered. This notice will describe the proposed action and possible alternatives, the proposed scoping process, and the name and address of whom to contact concerning questions about the proposed action and EIS.

**Noxious Weeds** - Rapidly spreading plants that have been designated “noxious” by law which can cause a variety of major ecological impacts to both agricultural and wild lands.

**Planned Ignition** - A wildland fire ignited by management actions to meet specific objectives.

**Prescribed Fire** - Any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

**Prescription** - A set of measurable criteria that guides the selection of appropriate management strategies and actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social, or legal considerations.

**Programmatic Biological Assessment** - Assesses the effects of the fire management programs on Federally listed species, not the individual projects that are implemented under these programs. A determination of effect on listed species is made for the programs, which is a valid assessment of the potential effects of the projects completed under these programs, if the projects are consistent with the design criteria and monitoring and reporting requirement contained in the project description and summaries.

**Reburn** - Subsequent burning of an area in which fire has previously burned but has left flareable light that ignites when burning conditions are more favorable.

**Riparian Habitat Conservation Areas (RHCA)** - Portions of watersheds where riparian-dependent resources receive primary emphasis, and management activities are subject to specific standards and guidelines. RHCAs include traditional riparian corridors, wetlands, intermittent headwater streams, and other areas where proper ecological functioning is crucial to maintenance of the stream's water, sediment, woody debris, and nutrient delivery systems.

**Riparian Management Objectives (RMO)** - Quantifiable measures of stream and streamside conditions that define good fish habitat and serve as indicators against which attainment or progress toward attainment of goals will be measured.

**Road Density** - The volume of roads in a given area (mile/square mile).

**Scoping** - Identifying at an early stage the significant environmental issues deserving of study and de-emphasizing insignificant issues, narrowing the scope of the environmental analysis accordingly.

**Seral** - Refers to the stages that plant communities go through during succession. Developmental stages have characteristic structure and plant species composition.

**Serotinous** - Storage of coniferous seeds in closed cones in the canopy of the tree. Serotinous cones of lodgepole pine do not open until subjected to temperatures of 113 to 122 degrees Fahrenheit causing the melting of the resin bond that seals the cone scales.

**Stand Replacing Fire** - A fire that kills most or all of a stand.

**Sub-basin** - A drainage area of approximately 800,000 to 1,000,000 acres, equivalent to a 4th - field Hydrologic Unit Code.

**Surface Fire** - Fire which moves through duff, litter, woody dead and down, and standing shrubs, as opposed to a crown fire.

**Watershed** - The region draining into a river, river system, or body of water.

**Wetline** - Denotes a condition where the fireline has been established by wetting down the vegetation.

**Wildland Fire** - Any nonstructure fire, other than prescribed fire, that occurs in the wildland.

**Wildland Fire Implementation Plan (WFIP)** - A progressively developed assessment and operational management plan that documents the analysis and selection of strategies and describes the appropriate management response for a wildland fire being managed for resource benefits. A full WFIP consists of three stages. Different levels of completion may occur for differing management strategies (i.e., fires managed for resource benefits will have two-three stages of the WFIP completed while some fires that receive a suppression response may only have a portion of Stage I completed).

**Wildland Fire Situation Analysis (WFSA)** - A decision making process that evaluates alternative management strategies against selected safety, environmental, social, economic, political, and resource management objectives.

**Wildland Fire Use** - The management of naturally ignited wildland fires to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in FMP's. Operational management is described in the WFIP. Wildland fire use is not to be confused with "fire use", which is a broader term encompassing more than just wildland fires.

**Wildland Fire Use for Resource Benefit (WFURB)** - A wildland fire ignited by a natural process (lightning), under specific conditions, relating to an acceptable range of fire behavior and managed to achieve specific resource objectives.

## 6.6 Literature Cited

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**Northwest Management, Inc.**  
233 East Palouse River Drive  
PO Box 9748  
Moscow ID 83843

208-883-4488 Telephone  
208-883-1098 Fax  
[NWManage@consulting-foresters.com](mailto:NWManage@consulting-foresters.com) e-Mail  
<http://www.Consulting-Foresters.com/> Internet

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